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NEWS IN BRIEF

Danes win Nato order

THE Danish electronics firm, Christlan Roysing, has won an order worth more than £12 mililon from Nato to equip Chinps, the Chinputer Assisted Mesaoge Processing System. The urder. which is the biggast computer export contract ever won by a Danish company, includes ei least 12 Christian Ruysing CR 80 computers. Deliverics will

start in tite middle of next year. Cumps will enable telegranis to be transmitted between Noto member countries under high

NCR installation

NCR is instailing ahared-lugic. word processing ond electronic mail in its two London offices with the purchase of o Unicum system for each building from Logica. Communicationa links are planned not uniy between the two Unicoms but also with an NCR 8585MP mainframe which holds a customer data-

Union merger

MEMBERS of the 3,000-strong United Kingdom Association of Professional Engineers have voted to merge with the Electrical and Engineering Staffs Association, e section of Frank Chapple's Electricel, Electronic,

£1m Spanish order

THE Spanish associate company of ITT, Standard Electrica, has given ICL its biggest order yet in Spain. Worth £1.2 million, it is Spain. Worth £1.2 million, it is for eight ICL System Ten 220a, 107 9601 factory data collection terminals and 33 9605 time production of the devices and was also continuing with its devices and vice and was also continuing with its devices and vice and v recording terminals.

GIVES 16

REPORTS

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the new matter life?

of 1,000 million flosting point operations per second, about 40 times greater than any existing supercomputar, could be a reality

NASA in the US wants such a system for vind tunnal simulation nt its Amea Research Centre at Polo Alto, Collfornia, and Control Data and Burroughs have carried out, studies into the possible architecture of the

Control Data's atudy auggested the use of of memory. There would be a moin memory with an necess time of 40 nanoseconda, a bandwidth of 258,000 million bits per second

A SUPERCOMPUTER with a performance each word being 64 bits.

An intermediate memory would have a 120-nanosacond access time, a 21,000-million-bita-per-second bandwidth and a apacity of up to 32 megawords. The third level would conaist of back-up storage with a 2,000-million-bps bandwidth and up to 128

NASA wants '40 times faster' supercomputer

megaworda of capacity. Burroughs outlined a supercomputer with 512 Independently operating conventional Fortran-oriented processora. Each would be able to execute 3.5 million floating point a single-processor machine with threa levela operations per second (flops) and would have its own 32,684 words of memory.

also have e supporting processor to run the operating system. Both companies whuid use emitter coup-

led logic in their central processors. Another supercomputer mnnufocturer,

Cray Research, is understand to be Interested only in offering an existing muchine rather than putting n grent deni of money into developing a new cumputer especioily for NASA.

But Control Data believes that the technology developed for the NASA supercomputer could be applied commercially

NASA is expected to ask fur propusals on In addition, all the processors would share a main memory with a capacity of about 34 and hopes to be able to have it installed and policy councils have be running by the mid-1980s.

megswords. The Burroughs machine would ami a capacity of up to dight megawords, RAM to replace rotating memory

replacement of rolating memory by Intermediate storaga based on solld-state random access memory chips has been made by Intel, which is to start deliveries in the next slx months of a memory system based on 16K

RAMs with a capacity of up to 72 Called Faat 3805, it will be offered as o direct alternative to the IBM 2305 fixed-head disc drive and is expected to improve

the overoli performance of an IBM system by up to 30%. Storage Technology eiready has a solid-state alternative to the 2305 called the 4305 which empluya 64K cherge compled devices, but the company has decided to go over to using 10K RAMs in the 4305 bccause of the

serious worldwide ahortage of charge coupied devices. Fairchild is the only volume source now of CCDa and a Fairchild spokasman admitted that all ita customers were on allocation. He added that Fairchild planned to expand its production of 64K devices and

was extremely fruetrated by the

back nrders worldwide for 450 . Ha pointed out that his firm still hoped to build eome 4305s based on CCDa if and when it could get the devicea.

Storage Technology has decided to charge the same for RAM-based 4305s as for CCD-based systems. The RAM-based systems will also be functionally Identical to CCD-based 4305e compatible with the IBM 2305 disc drive.

Storage Technology originally opted for CCDs instead of RAMs partly because it dld

become so cheap. Last year New York atock analysta Morgan Stanley axid in a newsletter that RAMs had a much more hopeful

The Faat 3805 (fast access aemiconductor technique) is to be sold in the US by Intel saleswhich, in turn, are software- up to 15% more than the equi-

future in 4305-type eystems than

man but intel could not say how it would be sold in Europe. Intel aays that Fast will cost valent capacity of fixed heod disc atorage but offers an access time of less than one millisecon compared with five milliseconds

200 more on **Threshold**

THE National Computing Con-tre's Thresheld training echame has been increased by 200 pieces through e redistribution of the Manpower Services Cemmission's funds. The NCC is size baing assigned an additional 100 piacee en the initial programming course which treins people already in noncomputer jobs. Empleyers who cond that

staff en the programming ceurse ere eligible fer a grent of £1,600, which pays for the course and pert of the trainse's salary. Hitherto this gront has been svatiable only through industry training boards, but no irms in sectors net covered an ITS can get the grant through the NCC. A grant of £800 epplies to the 10-week systems

nalysic course.
The new total of 1,200 Threshold placee is to carry of the 1890-01 year.

A 5280 with prugrummuhle alngic stutinn, 04K-bytes of

memory, two 1.2-niegabyte

Data entry for all IBM systems

or dual-display atetion, or as a stand-alone unit. There are also

single and dusl' desk-top data

stationa, and all unita support

elther integral or saparate

A DATA entry system with locol processing capability designed for remote communication with all the company's current com-puter lines has been introduced by IBM's General Systems Divi-

Callad the 5280 Diatributed Data System, it comprises a range of data entry display sta-tions and is driven by a multiple microprocessor controller which provides biaynchronous end SNA/SDLC communication

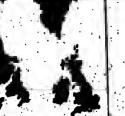
Announced with it is a wire matrix line printer with a conisnsed print feature enabling omputer output reports to be printed on A4 paper rather than standard full-width computer

From Paga 1 version of the 2950 ladue to be announced, while the atili a microprogrammed machine to fit between the 2960/10 and tha 2972, is likely to appear before

the end of tha year. number of possible development programmes with the Depart-

From Paga 1
About 18 months earlier, an mant of Industry. The company wants substantial backing, £6 to £7 million, for the development of a 128 by 128 array version of

must include marketing of a full ICL is now discussing a with unique products like that number of possible development DAP can it make enough headway in the US.



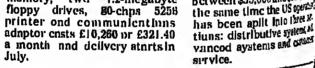
Computer Louising Lid Burk Bull Louis Comp.

fel of Season tipes 25-744

. 1 .1

ISC, IPA, atc.

and flexicase terms



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floppy disc unita.

Memory in the intelligent diaplays is either 32 or 64K-bytas, while the free-atanding controller offera 32K to 160K-bytea. A Data Entry RPG enablea users to write their own programa, providea access to the editing and processing functions of the 5280 end enables usars to build up local files. It complies

comes either built into a single- per-inch print density.

on the 5280 controllar. The new 5225 matrix lina printer runs st up to 560 lpm; tha and and full-width computer ationery.

The programmable controller condensed print feature gives a selectable 10 or 15 characters per inch and a six- or eight-lines-

ICL committed to big systems

unannounced S3, thought to ba the Distributed Array Processor.

ICL believes its future plans range in the US and that only



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proposed by Post Off chairman Sir William Barker

the vehicle for industrial tes

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The managements of the confice and the plants in

British Telecommunicate

Corporotion would

represented on the comes

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Sir William said he hoped to

unions would be represent

their general secretaries.

The councils would he

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They would discuss political

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In management's viert

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System Ten most

ICL's US subsidiary hat

duced a top-end machine it

Cumpuny's System Teach

business system tange 12

third midal in the tage of between \$35,000 and \$100 mg.

the same time the US openion

But the unions are state!

and performance.

postol and telecommunic

worker directors.

Or Partie thenumber torememberis

Presper Eckert of Enlac, claimed os the

world's first ali-electronic digitel computer,

died earlier this month, aged 72.

Dr Mauchly went to Johna Hopkins Uni-

versity, Maryland, on e scholarahip ond

greducted in 1932 with a PhD in physics. He

became head of the Physics Depertment at

Ursinus College, Pennsylvania, and while

there his work on weather analysis showed

the need for a high speed computer. To solve

this problem he bought his own electronic equipment and started experimenting.

In 1941 he left Ursinua for Pennaylvanin

University where he met Presper Eckert and they submitted a proposal in 1942 for on

electronic computer. The US Army placed a

PLANS are being laid in France which could

CGE pledges continued

THE big French electricol group vestment area within the cum-

shareholders that the eale of its Growth in the computer sector

interest in computers

Secretary India Com-

Number 690

Thursday, January 24, 1980

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eter Meirick Associates Ltd

Briefing

Joint project on robots

THE development of sensory and mechanical systems for robats is to be studied by the Industrial Innovation Centre as part of a £60,000 joint government/private industry

Work being carried out in the US and Japan will come under special scrutiny as the main aim of the project is to advance the development of robotic systems in the UK by learning from

Bld for Decca

TALKS which could lead to n Racal iskeover of Decca are under way and a formal bid could come this week. Now that Decra has arranged the sale of disrecord business to PolyGram. Racal is keen to acquire all the company's businesses opart iomielevision set manufacture. See City Comment, page 16.

Univac fire

ALTHOUGH a fire in branch siks administration at Univac's UK headquarters at Stone-bridge Park, London, last Sunday put the telephone exchange out of operation, a company pokesmen sald that no serious damage was done and it wos business simost as usual from Monday onwards.

o sale at BOO

REPORTS that the BOC group is planing to aell off the BOC Detasolve burcau and computer stryless operation hove been stoke in Compagnie des of the cumpany's business had denied by the company. A reexamination of all the group's activilies is continuing but gagement from the computer chairman Sir Leslie Smith says no conclusions have yet been

^{'370'} for \$20,000?

US SOURCES say that Intel Is to be a mejor growth and Inworking on a microprocessor which includes the IBM 370 ininfruition it would enable com-Manies to offer a desk top com-Puler running IBM 370 software mory and 20 megabytes of

indem rivai

E success of Tandem's multideessor non-stop minicombulers has encouraged DEC to together a similar system. m designed its hardware . the designed its hardware negotiation and is required to create the back-up capability.

Talks between the Post Office. Agmode, US aources say.

Union fights phone bilis sokeme A POST Offica plan to introduca a back-up telephone billing aystem which would enable eatimated bills to be sent out to

CGE has emphasised to

Machines Bull, mujority shareholder in CII-Honeywell

Bull, does not signal any diaen-

The company says that its

Intareats in peripherala, amail

systems, communications, soft-

whre and bureeu services and

met union resistance. The Society of Civil and Publlc Servants, which represents deleadevelopment project to Office, is concerned that the plan was announced without

> Talks between the Post Office. and SCPS are under way.

elling DP to solicitors

lonal and co-ordinating body to promote the dayelopment duse of legal information retrieval systems in the UK has been sat industrial and co-ordinating body to promote the day-ordination retrieval systems in the UK has been sat industrial and the society for the community of the com operate online services itself but will encourage commercial dersand Law. Called the National Law Library, the group will state online commercial

idea for the library came out of a report published last year by ociety for Computers and Law (CW, February 15, 1979). An object in the Law Society

Co-inventor of first digital computer dies, 72 problems. This was Eniac - Electronic Numerical Integrator and Computer — and it

Mauchiy end Eckert left the university in 1947 to set up their own company, Eckert-Mauchly Computer Corp, where they developed Binac - Binsry Automatic Computer - claimed as the first computer programmed by internolly stored instructione. From this machine Univac I was derived ond the firet was inatolied for the US Bureau of Census in

Manchly's main interest was the applicatinn of computers ond he was founder and a president of the Association of Computing

holding in Compagnie des Machines Bull is

roux, is to become chairman of CMB in

such a role.

hehalf of CI1-HB.

garded as the kind of man

who would confine himself to

interests in computers aport from its CMB holding, but has

great ambitions. It wants to

£1,000 million o year by 1985

(CW, November 20, 1979) ond is

expected to increose its stoke in

CMB by neguiring other com-

panies in office automation and

other computer-related ficids on

An Indication that the French

government approvee St-Gobaln'a plans for Cli-HB is that

Fauroux was received by Pre-

ident Giscard d'Estaing at the

Elysée Palace iast week to

outline his proposals. CII-HB is about the same size

as ICL but is only growing at just nycr half the rate of the UK

company. The French Industry Ministry is believed to see two

ways for it to expand by

acquisition and by moving into

new territories such ae UK and

. A Honey Well spokasman at

row its computer interests to

Unilke CGE, St Gobain has no

ead in Europe

lead to Cli-Honeywell Bull acquiring a cun-

trolling interest in Honeywell's UK and Ita- behind CII-HB. CMB is the holding company

lion subsidiaries. The move would incilitate for the 53% French stake in CII-HB and the

CII-HB's hopes of securing collaborative managing director of St Gobain, Roger Fau-

The purchase by the St-Gobain-Poul-à-Mousson industrial group of CGE's 20% roux, is to become chairman of CMB in Tebruary. The holder of this post has hitherto been a figurehead, but Fauroux is not re-

nnny's portfolio of interests.

averaged an annual 30% ovar the

paat five years, und the compony

would seek to continue this

growth rate both from Internal

development and further

CGE aold its 20% atake in

Mechines Bull to French Indust-

rial conglomerate St-Gobain-

pont-à-Mousson beceuse it did

not see eye to eye with the other

Bull, the French government.

over the next phase of CII-HB's devalopment (CWI, October 11,

ajor ahareholder in Machines

CGE hes not stated its objec-

CII-HB's invasion of markets

like office systems and banking

thought to have objected to Italy.

The Eckert-Mnuchly Corp was bought by Remington Rand In 1950 and for the next 10 years Dr Mauchly was director of Univac's applications Research. He left in 1959 to set up Mauchly Associatea

to carry on consultancy work and he ex-tended these activities in 1967 with the establishment of a second consultoncy, Dyn-● In the UK, Colossus, the Bletchley Park

code breaking computer, which was built by a Post Office team led by Tomniy Flowers, at Doills Hill, London, went into operation in December, 1943. The specification for this machine was devised by Professnr Max New-mon, but it was Flowers who decided to use thermionic valves in its construction. CII-HB drive to

BIGGEST

UK MICRO



leasing deal

puters at Microsystems 80, the biggest specialist micro exibi-tion and conterence so tar held in the UK. It is et the Wembley Conterence Centro from January 30 to February 1. And the exhibition is free, se mark

the deles in your illery.
Some 70 exhibitors will denionstrate their products and services on 100 stands.

The conference rune over the three days and includes eassions on developments in micro technology; pulting micros to work; systems design and essettlestism.

nalogy there are also three oneday courses: How to get alertoc with microprosessors Microprocessors

For the managor, angineer or softwara spacialist who is looking for an introduction to various aspects of micro technique.

Microcomputers — o hands-on workshop for anoinears; and Pascal: the language of micro-

SHOW LLOYD'S of London will be in the computer leasing business in the US if an agreement with the ailing Itel is concluded. Lloyd's will take over Hel's lease base of IBM 370s in return for an undisclosed sum of cash and assets from Itel.

The deal will relieve frel of having to find new lessors for the 370s and of having to make ony more cloims on Linyd's underwriters under policies covering the residual values of the 370s when their original

leases are terminated. The claims could have amounted to \$200 millium river the next two years. Lloyd's will assume responsibility for those

debts under the agreement. An Itcl spokeswoman in San Francisco said that final agreement should be made by the end of February but the \$100 million suggested by some reports as the payment to Lloyd's was

New from Cifer... ... the 2600 range

Introducing the British designed and built 2600 ranga of Visual Diepley Unite. This comprehensiva inge starts with a saries of 'Dumb' Terminals through to highly intelligent Disc Based Units. Featured below is the 2632 Carle Maria Maria

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CHARLES TO

Probability of the state of the



Turn to Page 3 customers during strikes has In which CGE has interests, INSIDE THIS WEEK'S CW....

PERSONAL QAME

computer market is only just control IBM being reclised. Some of these Letters to the Editor being reclised. Some of these systems can be seen in operation at filterosystems 80 at Wembley, and in e special section some aspects of the personal computer market and the equipment that is being developed are revisawed.

Pages 17/18

FIRST WINNERS

The solution of Computer Week-ly's first Price Crossword's population of the week with the names of the winners. The pett

nubilshed this week with the names of the winners. The next

oteword will be published on State Bit Pricery 7 Page 85 Rising costs kill Chaps

ALSO . . . The potential of the personal Computerview on Trying to computer market is only just control IBM

JOB VACANCIES: PAGES 19-55

COMPUTER WEEKLY

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D21-358 4838 Rsy Kelly 261 8018 6teve Robinson 261 8578 Peter Regis 281 8515 Cemputer Weekly has a circula-tian each week el over \$0,000 including the highest fully requ-asted circulation in the UK.

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lodata

COMPUTERVIEW

THE US Justice Department launched its anti-trust case against IBM just over a decade ago and the case has now been in court for tive years. Observers believe that agreement muy he reached by June, hringing the protracted action to a close.

Speaking at a conference, The IBM Impact, last week,

Dale Killnick of the Yankee Group seemed to go a long way towards muking the Justice Department's case for it. According to figures compiled by the Yankee Group at the end of 1978 IBM had 71% by value of general purpose enmputer systems worldwide, with plugcompatible manufacturers holding a further 2%; 41% by value of word processing keystalluns; 37% of date entry and communications terminals; 35% of small business

computers; and 1.1% of minicomputers.

The estimated combined value of these markets was \$125,100 million, of which IBM held an estimated comhined value of \$71,270 million or 57%.

In eddition, Kulnick estimates that the intal user investment in IBM software is between \$60,000 and \$80,000 million, e figure which grows relentlessly every year. Even the Series 1 minleomputer, much maligned for its first 18 months or so, really look off last year, and he estimates that shipments of Serica 1s in 1979 tripled to

dominated by the minicumputer manufacturers, he sees hard for the minimakers. a very thugh chuple of years chead for any minimaker IBM's Data Processing and General Systems Divisions which has not achieved annual sales from all its opera- are increasingly fighting each other with alternative rescued by the US government.

Trying to control IBM

tions of \$1,000 million. He sees companies like Data General, Texas Instruments, Hewlett-Packard as secure. as well as those with innovative products like Wang, Datapoint and Four Phase, but anticipates further problems for ones like Computer Automation, General

Automation and Modcomp.

Kutnick makes a distinction between decentralised ocessing and distributed processing, defining the former as a \$15,000 million market embracing miniconputers, small business computers, word processors and so forth. Distributed computing he defines as communicating intelligent terminals and computers linked In networks, and he estimates this as a \$1,000 million market growing at 65% to 75% e year. It is this latter market which IBM's new products oddress. He believes With the 8100 and the 4331 boilt strong new IBM that by 1983 IBM will have between 55% and 60% of this contenders for a market which has hitherto been market and it is this forging growth which will make life

products in the distributed computing marks by are available on the Series I minicomputer current General Systems Division products support for IBM's set of communications a Systems Network Architecture, so that for the network of System 34 or System 38 business can be built around a 170 or 303X host from the Processing Division.

recessing Division.
Kninick feels that IBM could get a consul under which it would agree to desist from po deented by the Justice Department to ke competitive — and that it is saving formed a general Business Group into a separate mistar hargoining card in the negotiations.

Advantages to IBM of forming a separate size inclinie more efficient curporate management. For the office market and independent the General Systems Division to pursus prices. and product unnouncement policles without st to the Office Products Division.

The problem in trying to regulate IBM is that gond for IBM is in general good for the use, self-company hecomes more innovative and secnetitive that becomes increasingly tree By inevitable product of the capitalist system he survival of the fittest must always lends;

We may well live to see the day when IBM h

LETTERS to the EDITOR

The same CII-HB answers IBM France

Doctor Lardner?

REGARDING Donald Davies' bage's Difference Engine was attended by Lady Lovelace, vas

Bull-designed DPS 7/80 and DPS 7/82, which cover the perforaddress to the British Association in 1836, produced calculations which "proved conclusively" that it would be impossible for a steamship-to cross the Atlantic.

Bristol, challenged the accuracy of the calculations, but failed to convince either Dr Lardner or the audience that such a journey was within the bounds of

P. M. BELL

France's dota processing divi- the 3033. sion (CW, December 6, 1979) there were a number of points DPS 8 machines are being. France is unhappy whom its

Lardner, whose lecture on Bab- nounced the Cli-Honey well France".

IN your report of the interview 3032, and the DPS 8 which, at the development of public sector with Gerard Lamy, head of IBM top end, is more powerful than computing applications. We do tor over the forever These large-scale DPS 7 and

concerning CII-Honeywell Bull. monufuctured in France, a fact We would like to respond to the which makes nonsense of Lamy's statement that "it would You said Lamy did "not know seem to me to be preferable (in , what is the present 303X nhein- the public sector) to buy top biography of Lady Lovelace (CW, January 10) it would be strange lapse of memory since it 303X which, while not being 303X which, while not being not in a position to complain. interesting to know if the Dr was only last year that we an. French, are at least made in

the same Dr Lardner who, in an mance range of the 3031 and support policy had hompered

Project management

confirm that this is an area which has caused considerable problems in the past, and I am hopeful that my investigations may led to the preparation of some useful guidelines for future

I AM involved in a study of the much like to hear from anyone methods used in various organ- who would be prepared to coisations for planning and con- operate in this study. It would be Brunel, the designer of the prolling the implementation of most helpful if they would write steamship "Great Weatern" computer based systems. I om which was then being built at sure many of your readers will address below. PETER HAINE

Principal lecturer in computer science Computer Science Department Laachester Polylechnic,

project managers. would consequently very Coventry CVI 5FB.

What that bar coding means

COULD you give a more datalled explanation of the bar code dlagram published with Nicholes Benwell's report of the retailing conference (CW, November 8, 1979), It is not self-

Otherwise this was o good article in a good paper.

R. A. LLOYD

Light margin
11 modules wile

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X.E. LO 79 NYCORDYTES DISK STORACE & 64 KBytes of Man Affectory - Standard & Lay of Region to CP Mid 8 - STANDARY & TEXT PROCESSING BARD, CONDUCTOR TRA

DSC-2 Out of Security CPMco - STANDARY - LEG USER & CASC control STANDARD & MEX.-21 3210 98 MEQUBY 159 DISK STORAGE - 32 USER & CASC control STANDARD & Report of ASSESSED IN CASC - STANDARD - REPORT OF THE ASSESSED - REPORT OF THE ASSESSED

There is ne basic difference between There is ne basic difference between the European Article Number and the Universal Product Code, on which US orticle numbers ere based. The Universal Product Code has 12 digits and the European Article Number has 13.

The first digit of the Universal Product Code and first two digits of the Universal Product Code and first two digits of the European Article Number identify the Article Number identify the Article Article Number. ine Europeali Afficie Numberidentify the ceuntry which tened
life number (see diogram). The
next five digita (fenr. in, come
countries) form the manufecturer
number. Each manufecturer gets
o unique europer en poyment of o

Modulo chack digit 012345 678700 Left hand QCR-a Cantre Right hand .guard bars 101 Humpa guard bars 101 roadhble 01010

fee le o nati**ce o**l emiliarity. The next five or six digits ore used by the manufocturer to give on number to coch product. Different numbers must be allocated for

each variation – for example, in

eging.
The load digit is the check digit, which ensures the bor code has been read correctly by the scannar. - EDITOR.

1984 and all that . . .

characters

THIS weak's example of the strange things people say in the media about computers was sent in by J. Parry of Pilkington Bros, SI Helen's, who wins 55.

It's lesvitable that there will be some teanagers who get into trouble whether they call themselves mode, rockers, hippies, flower-children, punks or they re just plain computer-programmers.

Virginia frontita in Woman.

The agreement between UII-HB and the French State, which tected by the dela about it. The deliveries cont-cerned represent only 45% of the data processing equipment Parks Elsewhere Lamy suggested IBM France finds so objection-7/82, which cover the perfor- that the French government's able, has nothing of a mimopoly

sector.

Since, however, IBM has a

not believe this for one moment. the agreement which March 1980. This kins What we can believe is that IBM of recent for IBM andre IRM has taken subser reduced orders from the public in sector orders in fa-It is noteworthy the

in the plumbers and hove his larger share of the French public - never protested & A. computer room torn apart to install water cooling. sector murket than it has of the sector purchasing y-US public sector market, it is the US. The French "We want less packaging. If 64/DPS systems by you buy the VTAM access days after announcement. The method it comes packaged with there, but not in his a collection of other software put new products into full prohiudon't want, but it costs more American Act". to buy it separately. And once before opening its books for you take the software you don't orders, so that it had a stockpile

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Dol backs CSA study on micros in industry

sponsor a study on the applications of micro-processors le manufecturing ledustry, to be carried out by mamber firms of the Computing Sarvices Associatios. Cetalis heve yet to be ixed, but the work will be on similar lines to lixed, but the work will be on alminer lines to the text processing atudy started less yeer jCW, August 30, 1878). CBA president Jim Consideren described the sim of the work as to help users follow on from

he Dol's swareness programme.
The idea was to ensure that the reagurces

and knew-how were svallable within momber firms to react to demend for products, services and consultancy to do with industrial micros, and to ancourage service firms to build up

That was the messege for IBM

from Des Lee, chalrman of the

Impact, last week, he listed five

olicy changes ardently desired

We want price stability. The present system of frequent price

adjustments damages a DP

"We want case of migration.

A user who needs to upgrade

from a 3031 to a 3032 has to call

changing the ground rules.

need be for your customers. you're headlong into Systems

IBM Computer Users' Associa- there must be a better way of

Speaking at the C/iS-Yankee livery of a new product than

manager's credibility, because it is impossible to make the right financial decision if IBM keeps going to do next? "There's a great deal of fun in being an IBM user, but I wish the

Group conference, The IBM IBM's raffles or ballots.

US word processor

ANOTHER word processor from and each screen has two drives

US maker Ontel has been mounted beside it. Software is

launched in the UK by also loaded from these discs,

blonotype Communications. It enabling fast switching from

is downmarket from the existing WP to DP, with different func-

model 80 but with user pro-

The two-screen model 150 sells for £11,954 including one Diablo printer, and the single-

Both new machines use rather more complicated than

double-sided, double-density on some word processors, with a

mini floppy discs, unlike the go page buffer that has to be stored

which uses 8-inch flopples. 286 by hand and which does not necessarily correspond to the

CII-HB drive to lead in Europe

Weekly that the company had no interest in changing its ownership position in any of its European argument and its proposals for collaboration."

CII-HB has made formal pro-

Assals Io ICL and Slemens about European manufacturers, but

ollaboration in the fields of both ICL and Siemena have

networking, peripherals, langumada it clear that they want

lmost all the mainframe CII-HB would like its nat-

CL commented that it had up operations acvereignty,

polis told Computer discussing them internally

pages can be held on each disc. size of the printed page.

terporate headquarters in ting set of p

ad similar proposals from

tandardiaation and tha ax-

MOORE REED & CO. LTO.

Tal: Andover 4156

launched in UK

grammabillty and accounting sired.

Diablo printer, and the single-

screen 75 with printer sells for

From front page

manufacturars .

ACOUSTIC

COUPLERS

inge of producta.

Network Architecture

"We want better deliveries:

deciding when a user gets de-

"We want more information

from IBM about future products.

Why can't IBM tell us the thinga

that are in its plans so that we

don't have to attend conferences

like this one to find out what it la

compony had a better under-

standing of our problems. After

all, IBM's profits depend on us as

There was some discussion of

nominal ledger, ond sales ledgar

"Cll-HB has put an interes-

The EEC is keen to see closer

nothing which involves giving

as a European standard and.

aince this appears to offer most

of the features ICL has sald are

necessary for a networking system, some agreement could be reached in this field.

If this involved buying Level 6

minicomputars, mada by Honeywall in Scotland and CII-HB in France, auch a move

would be much more politically

acceptable if Honaywell's UK operations were European

involving work architecture to be adopted

owned.

users: lel's talk more."

capebility in this erse. information is seeded on the evallebility of products and services outside the smell group of consultants that ere currectly levelyed is the Dol's awareness programme, Coseidser

The work is expected to stert is February end last sight months.

The CSA's new director-general, Doug

Eyelone, in a roview of current work, anunced that a delegation of government officials from Cyprus hod visited the essocia-tion in Lendon to discuss contracts they ers plenning to place. More projects in Drace-were being storted, but stiff competition was being encountered from the French service

Users tell IBM: Stop

making life so difficult!

Charging users a premium for

early delivery was regarded as unfair and likely to lead to a

market developing in premlum

uacra who are not already

members of the CUA, saying

that unless one is AT&T, it is

Lee also made a pitch to IBM .

ackies from their government.
De the home front, the CSA is trying to tackle what Eyelons described as the "per-nicious" level of texation of the living expenses of coetract programmers. Represents tices are being made to the inland Reviews.

A study group on the difficult tesk of os-timaties looks like producing "interesting end useful" results, Eyelons said. A new directory of CSA members has been produced, listing the 170 members and the

services they provide. Usors interested in having on Index to who can aupply what service or product can obtain a copy for £15 from 73 High Holborn, London, WC 1V8LE.

Transmits at 9,600 bps

COMPUTER WEEKLY, January 24, 1980

DATA capture and data transmission to a remote meinfrome at appears up to 9,800 bps is one of the application areas for the desk tap computers from Matsushite of Japan that are now being soid in the UK under the Penesonic name (CW. Japanery 17)

(CW, Jacuary 17).

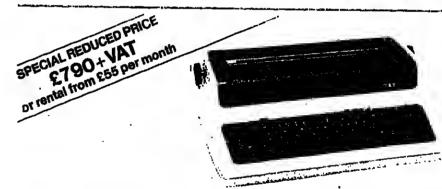
The machines in the Penssonic range, including the Model JD8D0U shewn hare, are primarily intended for use as stand-clone ameli business systems. They are sold in the UK by Teletronics of condens which has been seen as the condens which the condens which the condens which the condens within the condens which the condens which the condens within t achieve anything with the company. Where enough users were London which has been the dis-tributor of Penesonic business equipment le the UK for 12 years. Teletronics is appointing regional distributors to market and sup-

Home swaps

A COMPUTER matching system to help people swap their council houses is being considered by the government, which has allocated £400,000 in the current Housing Bill for its development. The idea is to incrense labour mobility to nrens where there are jobs.

HAMILION

an alternative to the "raffle" to decide the delivery sequence of There's no end to our terminals! machines ordered in the first few consensus was that IBM should duction for a sufficient period



worried about a particular pro-

blem, the CUA could have an

other organisations like the Post

"We also put the user's case to

Impact on the company.

Office," Ite added.

OIDITAL LA34 OECWNITER IV

■ Prints full 128 ASCII character set ■ Switch-selectable HO and 300 blind rate. Adjustabln line spacing

■ 9×7 dol matri s prini he True 30cps print speed Iracior leed Numeric key pag Low paper swict

HEWLETT PACKARO The Howlett Packing 2645A is o active ferminal providing Optional fully integrated, bi-directional, directional, directional, directional, directional, directional directions and directional directions. plovide up to 110K bytes mass slouge for each tape and ar easy to use with last search

ilmos. Derived benefits include Sale pinte £2,100

MICRO-DISC UNI

or rental piece from £130 per month TECHTRAN 951EE



controlled, minidiskelle systemi legiuring over 200,000 useble charecter storage A powerful disc editor and high speed string search provide ability to add detete or replace data with one command.RS232 compalible interfaces provide connection to vitually all dala processing equipment. Ouel connectors ere nciuded for use with date leiand lime shaling systems at switch selectable data rates from 110 to 9800 band,

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The 745 is an 80 column, thermal orining terrorical with a built-in acoustic couple; and EIA intedace The quiet operating 5 x 7 doi mainx enni head al operator selectable speeds of 10 and 30 characters per second Slandard ASCII keyboard with celculator tyre embedded numetic keycad and lwill key toll over leature Complete with as briefcase like carrying cest the 745 weighs only 13 5 jackinds

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Signs of these baffling times . .

my xenophobic being. My pro-

blem at the moment is the dic-

tating machine in our office

which has symbols on all the

corefully thought out to baffle

a herd of FRSs. The instruction

hook of course was lost long

agn and I use the machine in-

frequently enough that I can't

'l can just nhout see that

work out which way the tane

mean? Then there is o bigger

button that has no label at all

ond yat another on the

What happens when you

rush all the different combinn-

tions of buttons is n mnrvel o

impredictability. It adds an ex-

tra spice to life, that little thrill

we all need, when you can

never be sure when you are

tolking that anything is being

recorded at oll. The excitement

will be lost when the

ergonomists rediscover thuse

useful little things called

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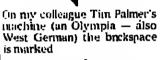
WE used to have undless argu- towards symbols is obviously ments at a job I had in the dim for the henefit of ignorant and distunt about how we foreigners who can't speak the would label the buttons on the lingo, and I resent it with all wondraus machines we were building, Ergonomics was then as now a trendy subject and people would get very emotiound alread their per ideas on buttons that must have been how human beings behave. Maybe we would nil have been enlightened by that course I once saw advertised by the Onen University "The fundancentals of human nature".

Colleagues would argue got it to work last time. streamously that it was obviously more efficient for lift call huttons to be labelled



thing "iP", and that this printciple should he extended uni- forward" or "rewind", and I versally. I insisted just as stre- will know which as soon as I missily that it was not ohytons, because of all the goes. But what on earth do situations where There was no possible picture symbol. How lo you make a symbol for "push" or "pull", or "no

over what the symbols should he. On my typewriter (an Adier West German, you see) the backspacy key is marked



It makes for foscinating logical arguments over which point of view is correct, but for those of us who just want to get some typing done the label "backspace" tells it all.

• is this a record? You will have noticed that the Post Office hee changed all the 2p slots on coin International road signs are something else again. Hands up all those who can instantly os phones to 5p, to make us pay for even more connect time that we do not use. The other after-Il the difference between the signs for "divided carriageway noon soven coin boss in the London Press Centre were connds" and "road narrows" without thinking about it, as verted. By the next day four of the they flash past at speed? The coin mechanisms were out of order! Oh wall, meybs h wasn't the mechines' fault; outraged sign meaning "no lorries allowed" looks just like on incallers could have been trying to vitation, "Do drive your lorry

This increasing trend

we have terminals

LA 34

Irom 💥

from Qume

55 cps KSR and RO delsywheel prinisrs

from NEWBURY

TEXAS INSTRUMENTS

Silant 700 portable 🕺

TI 820 KSR and RO TI 825 KSR and RO

TELETYPE

Wilkes Computing

MICHIE'S PRIVATEVIEW

A SCIENTIST who pulls a long face over the difficulties of his from Sod's Law in the laboratory or from the wickedness of the human heart on committee, is like an infantryman griping about pack-drill or an airhostess obout jet-lag. The Inte George Formby made the only oppropriate comment. "It serves me right, I shouldn't

It jolly well serves me right!"

A scientist has, however, an entitlement, I would say a duty. to speak out when his training enables him to perceive an opproaching communal hazard. The fallure of recent technological events to penetrate the chard of unknowing which still envelops our realm should make us give thonks that Britain still has scientific minds of distinction whu are willing to tell us the truth - not only about technical facts, but also shout the coining cumputer people are doing.

Sir leunn Maddock, secretary to the British Association for the Advancement of Science, and now Principal of St Edmund Hall, Oxford, was in at the beginning of the Ministry of Technology in the mid-1960s, and subsequently chief scientist to the Ministry of Industry for elght yenrs. His earlier scientific work had eorned him election to the Royal Society. He has now brought factual analysis to bear on today's unheaval of teclinology and its effects on The Future of Work, to quote the title of his gripping and luformative

His first conclusion is that the "technological explosion" is inready measure of technical change over historical time he lists the following.

Ia) How for could a person travel in one day;

(b) How many people could witness an event (e.g. sports); (c) How far and how frequently could people communicate

(d) How many people could be. killed by a few warriors; (e) How many calculations

could a person perform in an' After discussion of the limitations of natural resources and problems of the population expansion, Maddock turns to the uptake of technology. Given certain minimal levels of literacy and numeracy, less advnnced nations can fairly speedily acquire what he calls 'plateau technologies" H.e., those which have already entered the

system

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The cost of scientific illiteracy

diminishing returns phase television, to the econumic effects of the outomobiles, refrigerators). But very ad- liquidation of the British Empire ynnced technologies, which He does not draw one uf the break completely new ground. interences which I would have become the preserve of a few drawn, namely that the cost of developed nations, sometimes scientific illheracy in governthrough giant multi-national ment has now become too high a price to pay for retaining the uld corporations or multigovernment enterprises. Mad-dock perceives difficulties here light-henried style of science agencies in arriving at their detoo, concerned with cost, and cisions. also with the "diminishing Sir leuan Mnddock's essay return" effect seen as somehow

reserves some of its most telling points for "the mighty chip". He categorises the impact in the Ability to extend or even dis-

place mon's capacity for thinking, his intuition or his Pervasiveness; virtually no

field of octivity enn fall to be influenced. Widespread replacement of mechonical and electromechanical devices.

Speed of advance in performance more than one hundredfold every ten yeurs. 5. Reduction of cost, at even ateeper rates of change than good to each readerman sheer performance. In a period of inflation the price of each

unit of performance has decreased one hundred thou- having to draft that: sandfold since the eurly 1960s. Reliability, far exceeding that of nny other engineering de-

7. Flexibility. Because microprocessors are programmable their performance can be ruling and penny-counting. So Changed quickly and chenply.

Maddock comments: "This collection of qualities add up to Court, Marsham Street, St.

hardware maintenance costs nre expected by Digital Equipment from its remote diagnostics centre now opened at Basingstoke. The centro will service DEC users in the UK and Ireland with PDP-11/14, 11/70 and VAX machines at nu extra charge. A similar service haa been Is hand of the Mitthe available in the US from DEC for Intailigence Retting two years and there are now Unit at Edinburgh Wei about 1,800 users. Not long after

centre will soon be opened at

Valbonne in Southern France to

cover the remainder of Europe,

and DEC expects the service to

Som handshake

for ITT ohief

WITH a golden handshake said to be worth \$5 million, Marold

Conson has given up the chaimanahip of ITT nearly a year asrly and is successed by Band Araskog. Gansen come from Roytheen 20 years ago to become ITT president and since than the corporation has the

than the corporation has in-

ressed seles from lass then

\$800 million to 1959 to 119,400 million in 1978.

Arskog joined ITT from densywell in 1966 and become

had originally

chief executive lost summer to

appointed as his potentief suc-cestor. Hamilton laft the com-

place of Lyman Hemiliton who

uny leal year.

the advent of the most ment able new technology earl

prescriptions mobilising an adequate are: response all lay emphase: thinking in terms of logg strotegies "rather then are cession of short-term units expedients." But what olitical heads of gover: now is this to be achieved?

"A sense of urgency att. Maddock. But how to move. this sense?

The booklet's analysis. general deeper than its said

of Ishald I'de REFERÊNCES

Sir feitim Meddock (197.)

ture of Work. London

within five years.

DEC diagnostics centre

promises big savings

remote diagnostic service is not an additional diagnostic facility. but will be the principal method on medium and inrge machines. In future all medium/large DEC computers will come with the console and microprocessor based modules needed to interface with a remote diagnostics system. The PDP-11/44 and the US debut DEC promised that VAX mochines are already the service would be introduced equipped in this way and In Europe (CW, October 19, existing 11/70s can easily be In addition to Basingstoke a modified in the field.

If a maclifie goes down the diagnostics procedure starts by the user phoning the Basingstoke centre via a Post Office Free Phone line paid for by DEC. The user then explains the symptoms of the fault to the DEC engineer at the centre, and if diagnosis is considered necessory the faulty system is connected directly to the diag-nostics system at Basingstoke which is based on two PDP-11/

No more manual intervention is required until the fault is identified, a process that takes an average of just under two hours, according to DEC. The been developed according to Basingstoke engineer then P-E. phones the DEC field service TI

in hardware maintenance efficient and speedy the DEC emphasises that the Basingstoke system will maintain detailed information on each user's configuration and its mnintenance record. The of diagnosing hardware faults Basingstoke system can also carry out a diagnosis before preventative maintenance if time is available un the user's

Perkin-Elmer for Citibank

CITIBANK branches all over the Middle East and North Africa are to be equipped with Perkin-Elmer Model 3220 computers under a contract worth \$5 million to the nulnicomputer sup-

Perkin-Elmer snys that a key factor in its success was its Integrated Transaction Controller which enables NCR Cubol progroms to be converted easily The 50 3220s will replace NCR 8200s for which many batch and been developed according to

The 3220s will have up to one office nearest to the user and megabyte of main memory, two tells the maintenance engineer 67 megabyte disc drives and up there exactly what parts are to 10tt terminals each. They will required, so reducing the handle all day-to-day branch number of ports that need to he banking activities and will contaken to the user site as well as nect to Citibank's worldwhile message switching network

Mussian greeting card protest

childring stress buyers at ins nerrogets toy fair were met by a bovy of ablivering girls organised to protest ageinst the import of cut-rate Christmes cards from Russis. An agency owned by Control Date has been hendling the cerd doel (C.W. November 29, 1979) and the protestors are claiming that its purpose is to finance the purchase of computers by the Russians. Adler awarded Post Office Telephones contract

Greatings cards buyers et the Herrogete Toy Fair were met by a bovy o

ADLER Business Systems is to operators all over the country.

The TA20s will be installed at the PO's DP centres at Bristol and Derby and will be used to: check the call data and encode it on the cards in OCR A found for reading by Croslield 9300 OCR

The Adler kit will replace 70 ageting Floridata encoders.

Information encoded in OCR supply the Post Office with 37 A comprises additional details of TA20 desk top computers for calls. Standard information like processing cards filled in with the caller's number and the telephone call information by duration of the call is entered on the cards by the operators in the form of bar codes. The Croshold 9300 reads both the DCR A and bar coded information and the complete system is called lupur System for Operator Controlled

> It will remain the predominant method of capturing such data for some time

UK subsidiary of Data Translation

COMPUTER WEEKLY, January 24, 1980

acing systems commany Data Translation has been established in this country to market the parent company's range of digital and analogue intertaces for microcomputers, also the Tange of minicomputer interface and controlled produce, manufactured by MDB Systems, with HEE 488 interfaces made by Zia Tech.

The new Uly subsidiary, based at Gecko House, Sutton Park Industrial Estate Reading, 13 headed by John Cavill, previously lamage and aless marriages. with Carchild Leat Systems .

FOCUS

intrinsic (examples: rallroads up

to 1930, motor vehicles up to

Concerning this last point

feel some scepticism about the

causes of some of the costs. Are

heae really attributable to in-

herent technical and logistic

factors? I see them as being in

part sociological. It was in no

that the Concorde project

should have been planned on a

technically sub-optimal and

economically duomed basis,

rather than following along the

Barnes Wallis line of thinking in

the 1950s. But in view of the

stubborn unclubhability of

Wallis himself, it would un-

doubtedly have been more en-

things the woy they did.

ovable for all concerned to do

One of the perks earned in the

process of becoming np ad-

vanced civilised nation is the

reedom to have decisions taken

in an atmosphere of good fel-

lowship rather than of slide-

long as we can afford this, well

sense necessary or inescapable

1950, telephonea up to 1960).

A necessary evil

Seldom is the arrival of dropped over two years ngo. auditing teams in the comuter instullation greeted with ubilation. At best, they nre regarded as a necessary evil one which requires doors to be kept locked and logs completed or the duration of the audit. At he worst, they are regarded as an unmitigated disaster aren. Not only will current production he hunpered, but carefully planned implementation sche-

The reputation of auditors involved in DP is far from good. Many DPMs believe that their latest data prep recruit would he more familiar with a computing system than the average auditor. On their arrival, the DPM often finds it beneficial to provide the auditing taam with a few bosic principles of com-puting. Tenninals, for example, are not necessarily interfaced with hard-copy printers. Even when they are, editing procedurea could confuse any compar-

·Punch cards are not now standard issue in nil installations and their replacement, disc packs, should not be removed from the computer room. The library is not out of bounds to the operations staff, especially

during the night shift. Stage two is more advanced. the CPU, peripherals, program-

THE current state of computer mers and analysts. Usually the auditing in the 'UK, it is senior programmer is first on the generally agreed, leaves much to scene complaining to the DPM e desired. Particularly desirable—that the auditor should be given is the need to train auditors in another trail to follow. The one some basic DP knowledge and the is currently following will lend to a dead end - It was

Next to arrive will be the senfor inalyst who amounces that he is after all going on that datacoms course starting tomorrow. Could the DPM rescue his team from the scatterhrained auditor, otherwise the analysts' brains will he scattered around the back pages of Computer Weekly.

The present state of DP techhigh and very much dry. The duy when they could contentedly count and control punch cards have passed. In fact any auditor able to comprehend real time database working would quickly find himself being offered a job in the installntion.

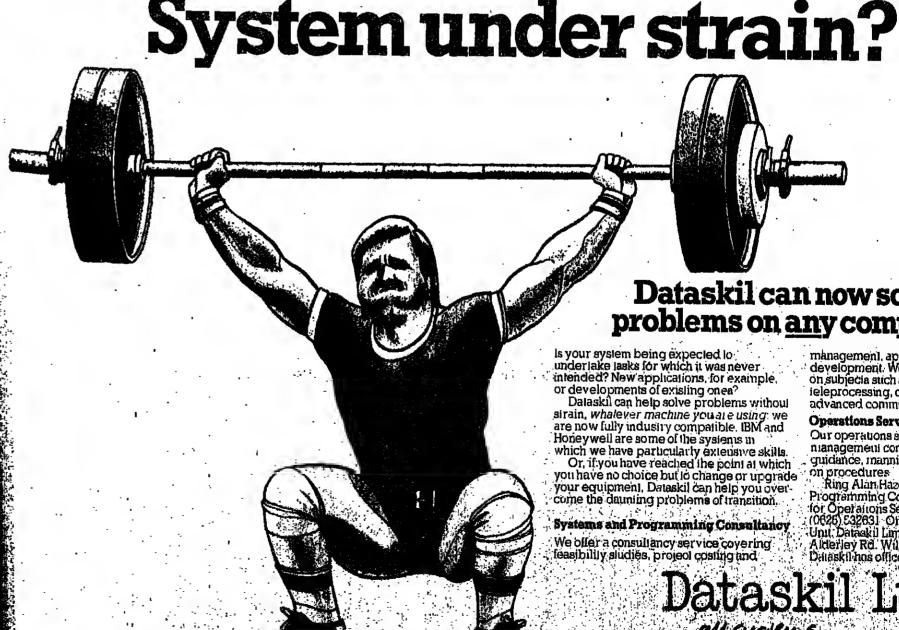
Not all auditing teams, how-ever, are still in the prime geheration period. Given a littla learning in a management or business school, they believe they have mora skills and DP background than any known DPM. Such auditing teams are determined to find major snags; in the DP operation in order that they can promote to senior. company management the necessity for a full-acule DP addit appraisal. The DPM is in all probability well aware of the shartcomings of his system and knows that the remedy, additional memory, would cost far less than any contract of the system. This course embroces the role of than any suggested and sur vev.

of the accounting firm ir Whilnney, "It is ease to · muditors to be profited a puter skills rather thank : way round his the tat he may good at many Whether DP profession; any desire to become doubtful. But at leasth. not make such a accounting as do sa

A little learning dnngerous thing, e auditors, but at least it far better than the

10 years of From Compute of January 22. BREAKTHROUGH

software indul



Dataskil can now solve problems on any computer

s your system being expected to: inderlake lasks for which it was never ied: New applications, for example or developments of existing onea?

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an systems The Computer Professionals

C/IS CONFERENCE ON IBM

TIM PALMER REPORTS FROM THE.

Sound TOPS training contributes to a company's success

company. When the firm is new it is even more crucial to choose suitable people to help the conpany in the all-important first

So it was niteresting to discover that a nuc-year-old software house in Windsor is staffed. by an unusual collection of exteachers, ex-social workers, a

ONE of the most famous artists of the Renaissance

Universal CMS in Windsor period was Albrecht Durer Among his hest kuowa work is an engraving entitled Melancolia, which deplets a philosopher surrounded by various scientific tools and mystic symbols, plus a 4×4 Magic Square in which the numbers to and 14 occupy

adjacent cells, thus "daling the justure. Not content with this little mathematical flourish, Other also made the Square "sym metric", in that all eight puirs-of-numbers — formed by trucing a line from one iteger, through the centre of the grid and across to the symmetrically opposite – Intal 17, which is of course exactly half the

type of square.
Can you reconstruct a Durer grid from these clues? See page 53 for solution.

COMPUTER SYSTEMS LTD

Magic Constant of 34 for this

lady whose previous occupation was working in a night club in

What's more, these people have been responsible for building up the company from scratch, and it has been their efforts and skills which have brought success and profit to the

Who are they? All are the products of TOPS programming courses - people who have rejected one career for a totally new line of work of which they had no previous experience.

started a year ngo as on offshoot nf Universal Film Laboratories and was set up by David Lloyd. Terry Forsey, the software manager, is an ex-Burroughs man, and now all the enapany's clients are Burraughs cus-

A staff of 12 deals with programming, which is split into two sections work for the clothing industry, and the remainder, each division employing six people. Packages that have been written for clients in the rag trade have been the main cause of Universal CMS' success over the past year, and the Universal Clothing System package was written by

Unlike the usual procedure, Forsey went to TOPS to find his staff rather than the organisation approaching him. "We wanted people with good basic knowledge who could develop

DEC based computer systems from stock

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volves an element of risk for any British Rail clerk and a young CD1/TOPS courses, but some from KBS/TOPS. They have all been absolutely marvellous and we have been going back to TOPS ever since for staff."

The average age ni Universal CMS is 27 and so far un-nne has left the company, In fact everyone seems to be throwing themselves wholcheartedly into

"We don't keep a check on hours," said Forscy, "Most enple work at weekends and this certainly isn't a 9 to 5 job. But being a small young company, we can afford to treat our staff well and we always make a point of taking a day off every quarter all to go water ski-ing or

Not surprisingly, the mixture of various backgrounds and skills in the company has gone a long way to overcrine difficul-

"We have one girl working here who used to be an operator," exploined Forsey. "She now checks all the programs hefore they go out and OKs them from the operators' point nf view. Then we have an exengineer, which is useful because he can tell if the thing is actually working. This saves a lot of time and trouble of the customer end. Our ex-teacher is responsible for training new staff when they first join the

Tony Parkinson joined the company in March direct from a TOPS course. Before that he had been a fork-lift truck driver, and had worked in an adventure playground in Belfast. He was not sure at first if computing was really the career he hod been looking for all his life, but when he saw the TOPS ad in The Guardian he felt that it would be

a step in the right direction". He attended the CDI/TOPS computer programming course in Guildford where the emphasis was on teach-yourself techniquea. In contrast to the ICL/ TOPS courses, which we have already discussed on this page.

Parkinson had nine Interviews as a result of the course and out of two job offers, the one with Universal CMS appealed to him

members of the company's pro- after reading on this page a small firm employees play a number of roles which they would never be called upon to "We went to TOPS because

Fnraay said that peopla from TOPS had been round to vialt trained, reliable staff, We didn't Universal CMS, to ascertnin want to employ any contractors what went on in a small com- when we started because they

student, Alon Balley, at work

An ex-TOPS

onny and the differences in the definition of a "programmer" between a large firm and a small

The TOPS graduatea at Universnl CMS were systems onalysts, tutors and indeed part and parcel of the entire company administration, as well as programmers. "Everyone here," said Forsey, "has been involved In customer training and supnort as well as programming.

The things we pride ourselves on here are quality and continuity. This means that if a customer meets one of our staff, is more or less bound always to meet the same one. This is the sort of reliability we like to en-

"It is rare thnt a programmer would arrive at the stage where he is meeting managing directors of a firm within a year of joining the business, but in a small company this can happen and it enhances an employee's career as much as it does the

All work is done at the compony's office at Old Bank House n Windsor, a Georginn building next door to Windsor Castle containing two Burroughs B800s and a B80. Demonstrations are held elther at company premisea or at chosen Burroughs sites.

Because of the prestigious location and the impressive appearance of Old Bank House, several of the spare rooms in the accommodate senior management meetings, conferences, seminars and courses for outside customers, Rob Burbridge, who is in charge of this side of business, described the operation as very successful, "if sometimes a little lika Fawity Towers," as Universal CMS also makes itself responsible for refreahments, from buffets to full banquets. The company will soon be running its own courses and eventually hopea to utilise existing

staff skills for this purpose. Since joining, Parkinson has become one of the most useful ling us about Universal CMS gramming team, but he is much more than a programmer. In a more than a programmer. In a from the prejudice and suspicion in the prejudice and suspicion in

perform in a bigger organisa there are no recruitment feea to pay and in my experience it is a good way of getting aoundly

don't have nny company loyalty, launched themselver and that is essential in a com- new career but pany as small and young as this. immediately been caught

me 'I can't get my staff to work

all weekend, how on earth can seen from this page over the last ities in the world of work where different environments and circumstances. Often these opportunities can depend very much upon their luck, location

nr circumstances. People who take TOPS courses usually take a chonce nsofar as they cannot predict exactly what kind of situation they are gning to find themselves in ot the end of It all except that they will be enmputer programmers.

Those who work for companies like Universal CMS are fortunate. They have not only

Customers actually say to new and enterprising a where their own effort: iurmediate

> From their point d TOPS was a good thing the us we have seen on its may not think so. But employer, the possible. he endless. Young persound training in prosect armed not only with to start a new and chi: career but also the above vantage of several teri perience of working

unrelated background make ideal employed Why don't more E; take the risk and dest. of the misconcepta neers have of "er it." who are often belief. do a job than ou;

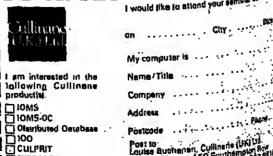
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by Judith Mort SOFTWARE FILE

VM is resurrected from the grave

"MVS was originally meant to be this 'unifying' operating

ement from IBM clearly chabilitated the VM/370 ting system for mid-range ines, there are now signs the proponents of VM are ficent victory.

Until about two years ago. 1370 was very much a candiale for the chop among IBM rating systems, and a strong within IBM is still believed e antipathetic towards it.

However, the very algnificant advantages of flexibility it confers, coupled with the ease of use of the associated CMS conversational monitor system, are becoming ever more apparent as the falling cost of hardware reduces the disadvantage of the high overhead it Imposes.

Dale Kutnick of the Yankee Group research organisation believes that when the H-serles is announced, it will become clear that YM/370 and not MVS will become IBM's "superset" operating system.

Kutnick outlined his views at the C/iS conference "The IBM Impact", in London last week.

"It has long been an IBM goal to merge its mainframe operating systems into one superset operating system that would simultaneously support all of the previously developed applications (regardless of their

the one already offered between CICS and IMS, and support for system, but users of small-scale VM within Systems Network and even medium-scale 370s found MVS too complex and Architecture, SNA. took too mnny machine cycles." He sees VM/CMS as particu-Noting that OS/VS1, DOS/VS larly attractive to both first time and MVS can all be run under and remote users. Since, he VM as guest operating systems, says, it also handles transaction processing quite well, it should

tween CMS and IMS similar to

plans for office automation,

since IBM has written office

automation programs under

alongside the VM/CMS native mode, he believed that with exeventually supersede TSO and the VSPC "personal computing" ensiona VM/370 could evolve into the superset operating sysfacility, and even CICS. tem that IBM wants. This does He anticipates that at the bot tom end VM/CMS, which he not of course mean that MVS will not continue to be the IBM says runs quite efficiently in Si2K-bytes, will play an importlagship operating system for ant role in IBM DP Division's arge machines.

However, Yankee Group studies at user sites Indicate that IBM is not pushing users to adopt MVS as hard as it was a couple of years ago.

Kutnick believes that there are currently about 2,000 MVS users, and 1,300 to 1,500 users who have licences for VM. But that is not necessarily a measure of usage since some sites use VM/370 very infrequently.

Enhancements already mode to VM by IBM parallel those achieved by Amdahl's VM/ Performance Enhancement in tlint they enable a production workload to be run under MVS in parallel with development or testing under VM without denative operating system) and be ably.

Amdahi to introduce further aid for VM/370 operating system

ments comparable with those provided by IBM's Virtual Machine Assist firmware, and a Kond release of the company'a SIVS/SE Assist, which enables users to run IBM's MVS/SE on

The new VM/SA product has been found to reduce overall CPU execution time by between and 25% at test sites, tha improvement depending on serkload, job mix and other Variables. Since VM/370 allows other IBM operating systems to vn concurrently in the same aschine, performance variaons redifficult to predict.

not a software anulation of IBM's Assist for M. but attacks VM bottlenecks a similar way. It reduces the other of instructions required mulate 15 fraquently used illeged instructions, and fiers emulation routines to aximum advantage of the saya that VM/SA ia

y effective when used its VM/Performanca Enproduct, VM/PE. YM/PE is a hypervisor which ows one MVS or SVS "virtual

EW software on the way from native mode, and is particularly Amdahl includes an assist for useful for testing a new release the VAI/370 operating system of MVS while running the proeffering performance improve- duction worklond under the previous release.

Without VM/PE, the ovarhead could be as much aa 40% native mode, and Amdahl claims that this falls to under 10% when using VM/PE.

No UK raleasa dales have been aet for the two new products, but VM/SA is expected to be announced shortly. In the US, the MVS/SEA

release 2.0 is available this Release 2 of IBM's MVS/SE. MVS/SE was announced with

the 303X line and consisted of firmwara and software which Amdahl stresses that the provides a performance improvement of up to 20%. It is called Extended Facility on the 303X machines and is also available as a field-upgrada on 370/ 158 and 168 machines, where it is called Extended Feature. MVS/ SEA from Amdahl provides counterparts of many of the extended hardware instructiona which are functionally equivalent to those offered by IBM's hardware/software combina-

Amdahl claims up to 13% reduction in supervisor state bine 10 run with very little improvament in 'overall' formance degradation throughput for MVS/SEA, de Ampared with running MVS in pending on job mix,

measurement interface

effering a hardware measurement interface for users of 1470V/7A, 470V/7 and 470V/8 processors, which have y lest 4/UV/7A, 470V// and 4/VV B kolonia in the 28 to 29 nanesecond range.

It is designed to pre-process signeds and make it pessible for most.

Sometial monitors to handia them. It is stready systable for the OV/2 and will be available for the V/2 models in June

solution

of running a production werk-leed in parellal with VM/370 without imposing an unaccept-able overhead differs from the clution offered by Amdahi (see his page). Where Amdaht effectively

imperes a continuous further overhead on all other virtual machines under VM except for the one in which the production workload is running, 19M has worklead is running, tBM has added a feature to the VM/systams extension which enables the operator to shut down and bring up VM using simple commands at the censele.

This means that the operating system running the production workload can be switched to run in native media and once the

run in native mode and, once the run is finished, VM can be brought up egain with en initial program lead in either case. The fecility is aveilable for MVS, SVS and OS/VS1, but to

system must run in a virtue equals real werkspace so that requires no paging.

'IMS will become a

IMS? How can IMS users' inter- during normal database represts be preserved if IBM goes ahead with its plous to introduce a relational database, the socalled System R?

IMS will become a subset of the relational databasc, running "Since IMS is a very hierarchical databose, the antithesis of a relational database, this will

3880 disc storage control unit. aunched with the 4341. "The 3880 is a 5 mlps processor built in fast emitter-coupled logic (CW, March I, 1979) which leads observers to believe that it

will be used as a database processor in the future. Kutnick believes that not only the relational dotabase plus IMS, but also CICS might run in Amdahi is offering an HDAM

Optimiser for use with IMS/VS

WHAT is the future of IBM's databases, it is designed for use ganisation and to determine and ensure optimum placement of dota in the database. Inputoutput requests needed for Dale Kutnick's view is that retrieval are claimed to be reduced by between 10% and

CICS link

be difficult. It could be the rea- AVAILABLE In September is a son for the power of the new intersystem communication function from IBM which enables IMS/VS and CICS/VS systems to communicate directly with each other, both in SNA-connected processors. It enables a terminol on a CICS system to interrogate and undate remote IMS files and send messages to terminals on the remote system. Terminals on an IMS sysiem can equally be used to schedule transactions on

Hoskyns Modular Application Systems (MAS), are a total systems approach to the information and control requirements of organisations. During the past ten years MAS elements have been built for most applications in industry, finance and commerce. Over 1500 MAS elements have been installed worldwide. The table below gives an overview of some of the major sectors covered by MAS and other Hoskyns standard systems.

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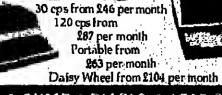
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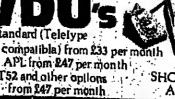




















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Big increases in your wages, but...

bring a smile to your face — salaries also vary with the nabetween last spring and ture of the company's hosiness. autumn the salary levels paid to At companies in the chemical operatious staff went up by more, in percentage terms, than those of anyone else in the in-

But don't smile too broadly, As you know only too well, programmers and analysis still pull industry, we see that a telex consulerably higher salaries operator gets £3,095 on average

I say this after reading a survey analysing wages and draughtsman is \$4,356. salaries throughout the country.

It is from Reward Regional Surveys: and is based on information submitted by companies helonging to 12 regional "clubs". IIIM, ICL, Honeywell etc - but

The survey, the seventh in u regular six mouthly series, states that the sulary paid to the average operator and senior operator rose by 13.3% and 8.1%. respectively. In money terms, that means un extra £411 for operators and £322 for senior operators.

By comparison, the salary of the average programmer went up by £203, or 4.4%, while the analyst's rose by £440, or 7.8%.

The survey indicates that national average salary for operators is a princely £3,500, while senior operators now earn

Needless to say, programmers and anolysts fare considerably better: they get £4,800 and £6,100 ner annum in each case.

Your average manager — the survey doesn't specify DP or operations manager — earns some £8,000, which includes a spring autumn rise of £617, or

Statistics are also analysed from a regional viewpoint. As you might expect, we find that the best paid operators and sening operators are in the Central London orea, with £4,224 and £4.050 per annum.

Staff in the Nottingham and Derby areas - £2,886 a year for operators and £3,129 for senior operators — are the lowest naid members of the operations

industry the operators get £3,525, a fair bit more than the £1,148 paid to striff in the service industries. Worth remembering If you're thinking of n move.

Looking outside the computer while a clerk gets £2,850. The

categories relating to the size and type of machine operated -that is beyond the scope of such

Figures such as these can be uilslending, but one fact stands out like u beacon — operators

Association is engaged in talks

with the Inland Revenue for one

main purpose - to look after the

That message comes across

inud and clear in a letter from

Responding to an Op Spot report about a meeting held on

contract operating by contract

November 29, 1979), he

A CERTAIN eperations managor

te his existing staff for each naw eperator they introduce to the

Shortage. £150 en the c He has elisted sums of menay year's corvics.

Doug Eyeions, who is director

interests of its members..

general of the CSA.

THE Computing Services tween the Computing Services

"The 'high level talks' be- from the Inland Revenue."

Beating staff shortage

iss come up with on unusual comeratays at the installetion for

What we really need is a brenkdown of statistics into

I'm sure most programmers do s good job, but then so do the majnrity of operators. Anyway, 1 Don't you think it's all n bit

*National Analysia of Salaries and



Wages, Reward Regional Surveys Ltd, 1 Mill Street, Stone, Staffs. Now, I always sold that unit had a bug in it! 'Managers must also look

"WHEN you wrote about the operations manager you didn't mention that he has to look after lils own Interests. He's got his own career path to follow as well are still very much the poor as looking after the operators."

Association and the Inland

Revenue to which you refer are

still continuing, but they have

'On the contrary, we are

not led to the present situation.

obtaining clarification and pro-

tection for our members (and for

their clients) at a time when

msny freelance contractors and

non-CSA companies (and their

clients) appear to be in violation

of the strict interpretation of the

1975 Finance Act and could

suffer from retrospective claims

They got £100 If the new-

All unelikiel, ei ceurse Seems very enterprieing te ma.

six menths er lenger, end snet

as you suggest.

Eyeions replies on CSA talks with Inland Revenue

up in his ivory tower." All is not well, however, as do not relate the operators' views and complaints to the operstions manager.

'We recently comploined about hoving to attend courses In our own free time. You see, the company refuses to give us time off in lieu. "Tha shift managera have told us the courses are for our own

good and that we ahouldn't 'rock the boat.' When we go on courses it benefits the company as well as us. It's an investment. "I suspect they have been given a directive from above and told to keep things quiet in the

computer room. I agree that the operations manager should look after his own interesta, ond he usually does, otherwise he wouldn' have the position.

£150 en the completion of one But by caring about the operators - orranging courses and other forms of training, and carrying out staff appraisals regularly - he is, in effect,

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operating is not too bad a way of making at This is the view of a contract operators years who has "no intention of going but permanent work, imless the demand forces." tors dries up." Responding to comments by an excuenwho was rather critical both of contract open and the agencies (Op Spot, December 2006) anld: "The only regret I have is that I didn't contructing much snoner. I was in a rater over a year ut my old installation and just realise It." That's not to say that !

after their own career paths

10) in which we considered the leaders or, in the case of our role of the operations manager. friend's site, by shift mnnugers, and looked at some of the ways Is of considerable importance In which he should lonk ofter his and should not be underrnted. At his installation they have tors to the attention of the short hy about @ auxil shift managers, rather than shift manager. In my experience got it all now, but had by leaders. They report to the some shift leaders do this ad- while, They blankdit could

Ideally, staff should be given lack of security. "Yes," three of the four shift managers time off in lieu to attend courses have a six-month or some during their leisure hours. But long contract and bear then again, at some installations week's notice. If the size the operators get so little good permanent opens: training that they would gladly doesn't need you set Egive up their weekend to go on goodbye. That's white courses.

So an operator replies to a looking after his own interests. recent Op Spot (CW, January The part played by the shift The part played by the shift ·They must bring the best operaoperations manager who "sits mirably while others do it not st puter, believe it or not."

Then, of course, there:

tractors don't have there

blems, as he went of

sometimes get Ill-feeling

there are several of them:

installation and ones.

That happens become

higher rate than the old

agencles tend to pay belle

to the operators who bases.

on their books the longest?

reward for loyalty, Isome

bit slow in paying of "

Agencies are also some?

Could this M your terminator for the 80%



into dentistry

Digico has moved into the dental computer business with the establishment of Crowo Systems Lid. This company will sell a complete hardwsre/software package which includes the Digico Conaort 20 minicomputer, and software developed with the help of dentists which records daily transactions and maintains patient racords

with the help of dentists which records daily transactions and saling other facilities.

Financial guidance

A MICROCOMPUTER systam based on the North Star Horizon and aimed at small businesses, storage, a VDU and a printer. Softwara includea: a. disc operating systam, Basic interment of Aylesford, Kent, a membar of the Raed Group: delectronics companies up by stockbrokers Montagu management. Companies up by stockbrokers Montagu management. Companies to be set Loebi Stanley and an unnamed stoup. The aim is to halp the change quotation.

A LEGAL database covering law publishers Butterworths apported cases back to 1945 will access will be by dial-up terment of the Lexia system in Dayton, date the agisting US base of 18 Ohio, is introduced here by the billion bytes will be searchable.

COLDATA of Reading has taken on the UK marketing of a range of US-built sident, John Boles, said that the FCIA peripheral products from Boles and Co of support was the result of an initiative by Menio Park, California. Boles can offer Congress to encourage the export of

Coldata and other European distributora computer periphers is built by US firms in up to 180 daya' credit because of support the \$5 to \$30 million turnover bracket. Boles plans to handle a wide range of

from the Federal Credit Inaurance

Association, part of the US Export/

UK's Export Credits Guarantee Depart-

Boles is an export-import company

NEWS IN BRIEF

World services

THE second world computing

services congress is to be held in

San Francisco from June 23 to

25, following the success of the

first meeting in Barcelona in

1978. Sessions are planned on

hardwara and aoftwara develop-

ments, management, markating,

the legal and financial environ-

Soots micro study

ASTUDY is being carried out by SRI international on behalf of

the Scottish Development

Agency on the demand for a

Scottish Microelectronics Cen-

tre. It is hoped that its recom-

mendations will prompt the

government into setting up and funding the centre by mid-1980.

Litigation dropped

miconductor's decision earlier

this year to drop Its PDP-11

emulator, the System 200

(CW, August 2) National and Oighal Equipment have agreed to drop all the related litigation

over OEC's PDP-11 patents. At

the time, National said that it

would carry on with the litiga-

tion in case it wanted to enter

the DEC-compatible market at

OLIVETTI has become officiol

supplier of data processing services to the International Ski

Federation which has installed a

P8060 minlcomputer to calculate competitor placings after nearly every ski trial it organises. The

previous manual method was to

carry out updates three times in

machloes are sold by Control

Data as the Omega series and are manufactured by IPL Sys-

tems. IPL is expected to an-

nounce an agreement with

Olivetti under which the latter

will sell the IPL computars in Europe (CW, January 3).

Omega factor

Ski placings

National

FOLLOWING

congress

ment, and ataffing.

products from different manufacturers import bank. The FCIA is similar to the including high resolution graphics, printers, modems, add-on memory and low-cost electronic mail systems. They will oil be sold under the name Genesis that already desis in wine, food and mili- (not to be confused with the Genesys

software house of Loughborough). The first four products from Boles being

sold by Coldota are an IBM 3741 compatible floppy disc storage aystem called the and terminal storage devices called the Genesis TSD-4 and TSD-12 that are designed for use with units like the Digital Equipment Model 34 and Teletype Model

Coldsta will charge between £2,500 and

180 days' credit offered by US firm in UK marketing deal

£2.800 for the FT02001 system. It incorporates two 8-inch floppy disc drives built by Shugart that otler two inegabytes of storage. The Genesis 21 minidisc will cost Genesis FT02001, s minidisc storage and between £1,500 and £1,700 and comes communications unit called Gensis 21, a low-cost VDU called the Genesis 1210 capacity of 88,600 bytes. The 1210 VDU costs between £500 and £650 while the TSD units are priced at between £400 snd £1,000 depending on capacity. The TSD-4 and TSD-12 contain 4K and 12K bytes of RAM and enable data to be formatted and

assembled offline. Philips to reorganise its **UK** operations

PHILIPS is planning a reorganisation in the UK to take advantage of the growing convergence of integrated circultry used in different products, to ensble economical manufacture and maintenance as well as a lower price to the cuatomer.

The phased integrstion programme for four of its UK divisions will also enable users to deal with a single Philips entity for all their needs in the office automation and business systems field (CW August 16, 1979).
The four divisions involved

The four divisions involved are Philips Data Systems, Pye Society opts TMC. Pve Business Communications and Philips Business Equipment Division. Integration is expected to be

Philips Data Systems sells small computers, banking and other terminals; Pye TMC sells business viewdata terminal; Philips Business Equipment Division sells its word processing and dictntion equipment; and Pye Business Communications sells a PABN, the PEX 8000 us well as intercom and paging

The four divisiona already have in their catalogues most of the products which will be raquired in the automated "office of the future," while Philips la be attached to phone network storage which would become available to the UK operation, if

PERSONAL computars can now puter being plugged into a The UK is speorheading be attached to the telephone separote acoustically coupled Philips' reorganiaotion to chol-lenge for the integroted office network vio an occustic coupler modem, only the modem would have to be evaluated provided systams and communication that it had been dasigned to liter markat bacause Pye is UK-based and produces some of tha key products for the new market,

terminals

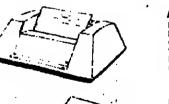
THE Derbyshire Building telephone and telephone ex. Society is embarking on a major change equipment to the Post automation programme this Office, other PTTs, and OEM to year, involving upgrade of its other parts of the Philips group, mainframe and the installation and also developed the Visa for the first time of banking terminals in its major branches. Beneficiaries of the plan are ICL for the muinfrance apprade and Datnsaab for the banking ter-

The society's ICL 1901T is to be replaced with a 2950/10 under DME in March. The terminals will progressively replace an optical murk reading system of data capture which involves counter clerks marking up the forms for subsequent dispatch researching further new tech- and processing at the computer nologies such as laser disc centre. Telecomputing's TPS monitor will be used.

In the first phase of the prograinme, D16/10 minicomputers will be installed in four branches In the Derby area, aupporting a total of 11 duol cashler counter tarminals. In the second, a further processor and local and remote work-station controllers will be installed.

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out unwanted signals. nal computer with an integral All equipment to be used with CONTROL Data has shipped modem would have to be subacoustic couplers must atill be about 100 IBM compatible computers in the US sinca 1877. The mitted to the Poat Office comportable, at least in theory. plete for assessment of its par-Viewdata terminals are still formance in relation to the netthe only exception to the bar on work. In the case of a personal comdirect connection of equipment with an integral modem.

Checking out the galaxies

tha formation of the Orien nabule (CW, July 27, 1978).

Sut scientists at the National Aeronautics and Space Administ-

Personal computers can now

Burroughs Illioc IV supercom

puter to show that some gelexias previously thought to be

reletively list ore in fact shaped like a rugby ball and rotate and-

avolution of the Universe and the avolution of the Universe and the galaxies within it is not new. Much of this type has been certiad out by IBM researchers at Various Market Name Various Parkets.

Yerktewn Heights, New York, who heve stready studied the avolution of spiral galaxies and the formation of the Orien nabule

following a Post Office ruling

but hord-wirad connaction la

still not yet permitted. A perso-

Burroughs' comms range A RANGE of communicationa The larger CP 9500 includes processors has been introduced four separote processing elecby Burroughs in tha US. Two ments, each dedicated to a difmodels, tha CP 9400 and 9500 are farent set of taaks. It can be used offered at present and thay are due for launch in the UK in February.

The processors are dasigned roughs, enables systems to into anable Burroughs computers and terminals to communicate with other manufacturers' equipmant. to communicate than was previously possible.

The CP 9500 costs \$32,000 and the CP 9400 \$22,500 in the US.

Reed firm launohes micro



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PEOPLE and EVENTS

Short is youngest master

IIGEL SHORT, 14, became th youngast internstionel master during the ICL Hastings chese toursement when he won 8 psints. Cheep players qualify far that his on winning 7 ½ psints.

Jahn Nunn, e 24-year-old

mathomatica lecturar from Oxford, tied for the £1,000 first prize with Uti Anderseon of Sweden. It was the first British chess victory at Hastinge eince

Short tied for fifth place efter irswing in 12 moves egainet tha Ruselen grand meeter

Peter Howorth, formerly soles director, has now become managing director of X-Data of Slough. He was formerly European sales manager with Memorex, Haworth is succeeded as sales director by Tom Blaszkowicz who joined as sales munager last year and who has now been appointed to the



managing director of Q-Pac Services, where he will repart to Duve Teran whn is an the international board of Q-Pac responsible for the UK aperatian. Hull was formerly managing directar of ICL India, and ather positions he has held with ICL include marketing manager far the 2903 in South Africa, and general management of Scot-Innd, North-East, North-West und the Midlands. Recently he has been responsible for inruling

(Cl.'s new entitpany in Malawi. Manlen Dawson has joined Plessey Microsystems us a sales engineer for stundard products. She previously worked for ITT Electronic Systems ns a sitles engineer in the microprocessar

received by 29th FEBRUARY 1980

SPECIAL PRICE

Dual Drive TU 58 based System

4 Satial Lines (1 utilised for tape interface)

RT2 -11 Operoling System Licence BASIC Software (an DC100A Cartridge),

Thu twin cartridgs tape drives appear to the

LSI 11 MODULES HB, KDJI JC, TU 58 BB, RXV21 BD, MRV 11 BA. UB281 BB, H9281 BC.

nperating system is be identical to a pair of floppy

disc duves, and will run the same software.

Duel DC100A Cartridge Tapa Drivaa

includes as standard

LSI-11/2 Processor

EPROM Bootstrop (2708)

Sackets for Jurther EPROMS

TVI-912 Visuai Display Unit

Licence and Documentation.

2 Spare Cautridgo Tapes

32 KB Memory

European Services

appointed by ECSA, the European Computing Services Associntian. They are to take up a Iwa-year term from Ihls

ECSA president is Knud Frederiksen of Denmark, the mnnaging director of JDC Datn. The newly-elected vicepresident is Jose Diaz Salanova nf Spain, managing director of Centro de Colculo de Sabadel. The munuging director of ORDA B. To Mutton of Selglum, becames ECSA treosurer und

All three new officers have been council members far several years. Frederiksen and Matten were both founder members of ECSA which this year celebrates its fifth anniver-

Speaking of their plons for the issued a statement which said, "There is an on-going tendency has formerly to restrict the free flow of data and Signetics.

one af aur most important duties ta present the industry paints of view on the impact of these restrictions to our industry."

John Armstrang and Martin Vandersteen have both been elected to the council af the Management Consultants Assaciation, as chairman and vice-chairman respectively for 1980. Armstrong is managing director of Urwick Orr and chnimum of Urwick International, and Vandersteen is a partner in charge of the management consultancy division of Arthur Andersen.

Ray Werner, formerly sales manager for Quine Corp's Western region, has become vicepresident of sales nt Vector

John Paliin has become UK period ahead, the new officers sales mannger for industrial products with Zilog (UK). He has formerly worked for Celdis

For orders

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LSI-11/2 Processor

PROM Bootstrap

60 KB Mamory

4 Sarial Lines



consultancy

SPICER and Pegler Management Consultants have announced the appointment of Richard Waller as manager in churge of microcomputer consulting activities. He previously warked for CAP Micro Products where he was involved in the development of Microcobul packages and will continue his invalvement with the Department of Industry microcomputer awareness programme. Waller was the first chairman of the BCS professional panel from

Peter Harper has been appointed sales manager for the EDP division of BASF UK. He joined the company in 1976 ns a magnetic media and peripheral hardware sales representative for the Midlands, previously working for Nashuo as an area søles monager.

Jahn Toomey, who jained Joian Systems as a senior programmer has been appointed to the board as a director with special responsibility for prugramming and operations.

Ron Proctor has become. branch manager in Manchesler for Univac. He was formerly o sales representative. Dick Gunning has joined the company from Burroughs and has been appointed to create a new branch in London.



confidence in the potential of the French merker, it from hes croated a new post — director, large eyetams — and appointed Philippe Durret, former hand of computing a former hand of computing a

Jeremy Britisin-Long has be come marketing manager with Univac. He was formeth manager far menufactum systems, a pasition which he has held since the inception of the BSM division in 1978. Mai Naylor has been appointed tech nical and custamer educate manager. He used to be a projet manager in the technical engi-

Chris Long has joined IIX z munager ai camputer systers analysis, a new past where !will report to Paul McKee, Illi computer cansultant. He jest ITN from the BBC. At ITN Leg will be concerned with the application of computer system generally throughout the copany with special responsible for the development of car puter graphics.

Colin Parlett has been appointed nn applications or sultant with Tymshare UKE was previously a sales reperturive with Burroughs mechanical engineering gra nte, John Lacey, has joined it company ns a trainer appta Hons consultant and Nici for has joined in a similar post. Roy Hurris, who has speaked years with UCC, has now jest Tymshare as an applicate programmer.

Jim Skipper has joined puter Mochinery Compaterritory manager for Hert: shirc. He has been in sist. two years with Control Da

DIARY

Natural language translation. Hadot-Watt University, Grossmar-ket, Edinburgh, 17.30.

FEBRUARY 4 Meeting. BCS Fortran specialist group. Heriot-Watt University, Edinburgh. 10.45. Tel: 0533 554455 ext 165.

The use of microcomputers in electricity distribution. BCS East Angila branch. Rusaell Road, Ipa-wich. 19.00.
Visit to Open University. BCS Sedfardshire branch. Milton Keynos. Apply via secretary. Tel: 01-637 0471.

FEBRUARY 5 A laak at the new Ansi Cobol stendards. BCS North West Landan branch. Rallway Hotel, 390 Oldfield Lane, Oreenford, Middlesex. 19.30.

Visit to Lloyds. BCS Kent bronch. Chatham. 19.30. Tie future of SCS and presidential visit. SCS Chester and Narth Wales brench. Half-Way House, Connah's Quay, Clwyd. 19.30.

FEBRUARY 12 Map-making by computer. BCS Craydon branch: Fairfield Halls, Craydao. 19.15.

Voice response systems. SCS Har-law sub-branch. Saxon Inn, Harlow.

Use of computers in MR weother forecasting. SCS Newcastla branch. Barrass Sridge Refectory, University of Newcastle, Newcastle, 19.00. FEBRUARY 13 Technical directions, BCS Bristol branch, St Vincent Rocks Hotel,

Computers in newspapers. BCS North London branch. West Lodge Park Hotel, Cuckfoaters, 19/5. CAD at Fords, BCS Sussex branch.

County Hall, Lewes, 19.30 Computers in the 80s. BCS Hunderside branch. Hull Cullege at-Higher Education, Hull, 19.30. FEBRUARY 14

Have computers any place in the distor's surgery? IICS Oxford sub-branch, Staff Coffee Lounge, Oxford-Polytechnic, Oxford, 19.45. MARCH 27-29 The changing balance of man technology, IDPM, Bournemouth Dougls; 01-658-0171



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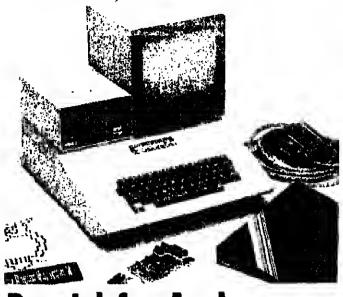
MICROCOMPUTER,

MP/200.

THIS IS HOW FAST TOU CAN GO.

MICRO NEWS

by Martin Banks



Prestel for Apples

THE Prestel interface peckings developed by Owl Computers for the Apple II has been taken an by Microsonse, Apple's maeter distributor in the UK.

New being seld ander the benner of Appletol, the £595 peckage ellews an Apple computer to be used both as a direct Prestel terminet, and as a remete terminet capable of storing and executing downline teeded data and prepared to was first demonstrated at the Porsenti Computer Werld Shew in London tast year on the stand of Apple dealer Kesn Computers (CW, Nevember S, 1979).

Flag-waving exercise at the TV-Mex exhibition

and vacant because they had

ground, as the overall event is geared very much to the high street home appliances retailer.

Among those that found the

show useful was Texas Instru-

ments, glving another UK pre-

launch showing of its 99/4 home

computer.
Mike Lunch, the company's

UK product mannger for the

system, felt the show had been

auccessful for attracting and

meeting potential deolers, for

target of 20 in this country. In-

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which the company has o total.

For those that were there, the

micro applications which have developed as a direct result of the all-pervasiveness of the devices could be seen last week at IV-Mex, a subsidiary exhibition to the domestic electrical appllances show, IDEA, hald at the National Exhibition Centre in

Dedicated to the application of the micro in relation to the TV, the stur turns at the show had nothing to do with the sub-

Market leaders in a headcount of the stands were two suppliers of "software" for the burgeoning video cassette market. A non-stop display on a TV was a far more successful draw than scantily-clad ladies lying under solariums in the main hall

Same exhibitors were disap- the specialist micro dealers like "command" modules will pointed at the non-appearance of a large contingent of com-Computers, but its long-term year. These will allow the Sigh aim is to sell the 901/4 through interface with various stander panies from America. Half the exhibition hall was boarded-off

It should be possible, by the time the system is officially launched next month, to have specially modified PAL-standard TV sets instead of NTSC.

Another recent entranting small computer scene, Shap was ulso in attendance, though UK systems manager Pac Streeter saw the companying sence mainly as a flag-waing computer scene. visitors were fairly thin on the standard video monitors to use exercise. with the system, and Lunch ex- He did however hint that pects the whole packoge to he retailing for about £1,000.

Though he does not see the a range of add-on hardware: system os the basis of o small software, such as floppy de business system, a thermal drives, a range of business printer is expected in April, and applications packages and a 90K-byte single sided, single version of Pascal that we'll density floopy disc drive in May. There have also been hints from at the small business mutthe US that terminal Interface and in particular the dominant modules, to be used in the same of Commdore there.

high street white goods and hi fi communications protocols.

Another recent entrant in the

would be coming on streams?

we had in hand," Morgans. "so it is by no means comp".
Another factor against

lishing is that the microba

available.

moves so rapidly andil wat; out of date by the time about

The questionnaire unde

ered the type of package cost, the level of support s.

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provided. An interestings:

in this was that the

attempted to use a mia:

cess the information.

puter database package w;

Morgan's comment es:

dutahuse system for runding.

package, an £85 Crome:

a Z2D system, sums up:

team's views on most pack;

"It was very impressive

price but it was not that eye. i

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and batch processing, program development, supports RPG, COBOL, SPL, BASIC and and communications to other HP 3000s or an FORTRAN. What's more, files created in one IBM mainframe - at the same time, You can use language can be accessed by applications it as a stand-alone terminal or in a network to written in any of the other languages, monitor what's happening on other systems.

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has correct at time of groing to Princ.

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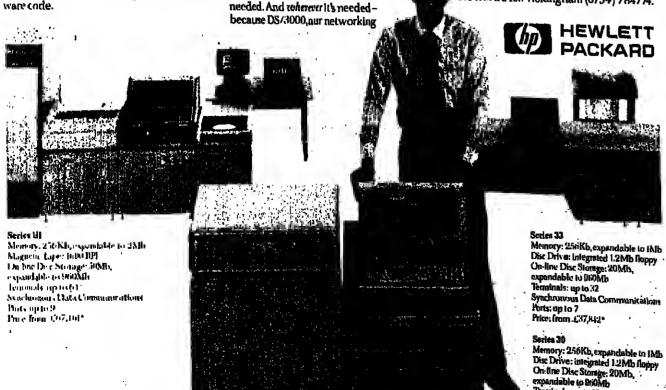
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NCC packages list

AS PART of a research project was only relevant to the partition the scope and availability of we had in hand," Morph 1. high-level languages and appli-eations prickages for microcomputer systems, a team at the National Computing Centre has developed one of the first comprehensive listings of software packages that are available and

The list has developed from a question maire sent by the team to everybudy in the country who might be offering applications packages for micros and it now contains details of some 100

team, Lyndon Morgan, the list is unlikely to he formally published, though information frnm it will be available to intereated parties vin the Centre's Informetion Service, which will have access to the list.

According to one of the NCC

"The Information we gathered

Alive and well in Chicago

fitted with n 12-inch screen where such a screen site seen allve in Chleago, at the Winter Consumer Electronic Show.

Expected to be available in this country by the second quarter of this year (Micro News, January 3), it is likely to form the main atem of the company's continued thrust Into the

virtually o necessity.

ro be held at the Shift Hotel, near London's Hell Airport on February Ismil will be almed at displaying full range of company aged tions packages to dealers.

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Thie is your invitation to visit the Centra Unhurite exhibition cruah, discuss your needs in depth; brown books, arrange training and place your Micro systems

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COMPANY NEWS

DECCA hea finelly ennounced that talks ere under way with Recei which could leed to the leng-touted takeover bid. The principal ebstacle to a Recei bid was simpet out of the ebstacle to n Resel bid was simost out of the way last wash when agreement was reached for Deca's record business to be said to the jaint nucle subsidiery of Philips and Slamane, subject only to the approval of Deacs's shareholdem. At the same time, Decee enneunced helf-year losses to September, 1878 of £3.1 million on tumover of £85.3 million. In the same period lest year, it made a profit of £511,000, but for the full year its lesses were £5.3 million.

ili year ita iesses were £5.3 million.

It is by no means certain that a Recal bid will succeed, but the fact that talks are under way means that the "For Role" sign is out; Decca's substantial defence interests simest calcinly

reduced the 18% fall in the third

quarter. It thus reported net

quinricr to just 1% in the fourth business.

preclude a fereign taheover, but a counter-bid fram GEC cannat be ruled aut. Recal-Decas appeam to have tack government essent but a GEC bid could fell foul of the Menepalies

Decce has retained its independence for so long in part because a large proportion of its sham capital is non-voting and in part because air Edward Lewis, who has guided the group through good times and bad, sentrols a substantial minority of the votes.

panies like Decae give them to prose for management and argenisational changes before disseter etrikes and the catestrophs of e akeover is the only solution takeover is the only solution.

The progressive eclipse of Dacce'e recards in Top Twenty over the past 10 years chould have been enough to signal that the record business was heading for trouble. A takeover may now be the only solution for Deaca, and the effectiveness of Recal management is impressive. But it is a pity that mare was not done when things

resolved by e taheover bid has given rise to some eriticism that the City Instbutions — incurance

companies, unit frusts, persons russes was the unions — have ence agein felled to use the influence their substantial heldings in comise, unit Irusts, pension funds and tred

Boost for Burroughs

BURROUGHS stands out among the major manufocturers as eurrently tha only one recording strong profit growth in the fourth quarter. Profit in the final quarter was up 19% at \$132.5 nlliion on turnover up 12% at

The rate of profit growth siackened only slightly in the last quarter: for the year profits were up 20% at \$305.5 million on

profit for the year down 3.2% at \$3,010 million on turnover up 8.5% to \$22,860 million. Strong growth for Honeywell

Business conditions deteria- STRONG turnover and profit rated in the second half of 1979, growth have been reported by so these figures contrast with profit up 32% ot \$240 million on profit rose 14.5% to \$3,111 nillturnover up 19% at \$4,210 milım and turnuver rusc 18% to lion. Fourth quarter figures indicated a slackening in the rate A ntajor factor in the poor of profit growth with net profit profit performance was the up 10% at \$68.2 million on stendy decline in the value of the turnover up 19% at \$1,230 mil-US dollar during 1979. This reduced 1979 profits by \$52 mil-

IBM just fails to

IBM just fulled to prevent the psychological acthack of o fall in currency factors, 18M's fureign

its year-on-year profits in 1070, operations roturned profits

but the wide-ranging pricing down 8.5% ot \$1,430 million on measures it took late in the year

prevent profits fall

turnover up 11% at \$12,200 million, 53% of the company's total

Chairman and chief executive lion; a trend in the opposite direction boosted 1978 profits by tremely good performance in the first half of 1079 was likely to results should be modestly

Sales were up 8.2% to \$9,470 millon during the year, and

rentals and services rose 8.7% to

\$13,390 million. In the fourth

quarter, the company's net pro-fits were \$1,008 million on tum-

both on capital equipment and research ond development. Capital spending la likely to be over \$250 million this year, and research and development spen-ding is set at \$275 million.

would be down in some quarters expenditure of its 47% owned of 1980, but overall, the year's French affiliate CII-Honeywell \$125 million this year.

Honeywell laspending heavily

However, Honeywell'a com-. \$98.4 million on turnover up 16%

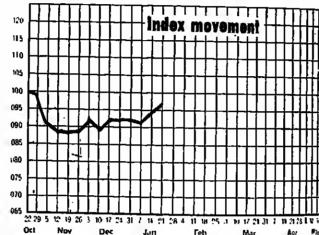
Bull, which plans to apend over

NCR Corp has closed ita booka on 1979 with net profit up 21% at \$234.6 million on turnover for the year up 15% at \$3,000 million. By the fourth quarter, the rate of profit growth had declined to 9%, neverthelesa giving the

CW SHARES TABLE

Perico		o london Slock Exchange		Penca a			Hew ton	Osq 11	
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The table shows the closing prices in London and New York at the end of last west he in Index is based on the prices of the LiK companies in the table.



Merger at Southampton

SOUTHAMPTON-based Fe nl both machines are to be to Data Services has taken over forred to an IBM 4331 which another Southompton bureau, due soon. According to Femilia Beresford Computer Services. activities of the two but Feni operates a Univac 9400 and complement each other. Fr.: Beresford runs a Burroughs member of the Sunlight Sent B2500 but the workloads from Group.

Question their judgement.



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vente	k Ltd., Si	ation Hous	e, Harrow	Road, Wei	nbley, Midd	TALES OF

Shake-down coming for small micro systems market

PERSONAL COMPUTERS

funding is not always the

answer either, for both partles

must fully understand the

requirements of the other to

Where high growth indicates

high potential profits in what

looks like a sound, long-term

business, financial resources are

But high, continuing growth

aiways disappear to fund that

comes very difficult to provide,

in real terms, any return to an

investor on the capital being

Management skills are not the

only problem area for the busi-

ness, for the customers are still

exactly what they are looking

for, and what to ask for. Many

salesperson, either good or bad.

And when the customer has

purchased a system, he still has

the problem of what to do with

it, once he is alone with it in his

He understands that this beast

he thought he understood

everything the salesperson told

him, he prubably is not too sure

of nll the details, once left to his

He will, for example, know

what a database is - the salesperson told him. But actually

setting up one for himself is a

This is just one aspect of the

Certainly this is going to cost

benefits of computing, he should

a follow-on, paid-for servica; or

question of being morally bound

Precisaly because the vast

HOTHY Of Customers and

There are now sufficient sup-

pilers and dealers around the

country for this to become a

significant element in the choica of which compony a potentiol

customer goes to.

If he is told by someone who.

has already been "bitten",

"Don't go to them, they did no-thing for me", that (un)blased advice is liable to be taken.

To some extent, it could be argued that the industry itself

has succumbed to its own ad-

vertising and public relations.

Image, coming to believe that yes, e computer that does EVERYTHING can be bought

for a nominal sum, packed in a

to provide it.

indirectly os part of the initiol

own devices.

are still sitting turgets for a

showing little signs of knowing

not that difficult to locote.

make it work.

puter systems market in this country, more commonly referred to as the personal computer market, will gross at least £43 million this year, compared to around £15 million last year.

Yet despite this enormous growth, about 186%, or perhaps hecause of it, the business of manufacturing, distributing and supplying these systems to the rates ulso mean that "profits" only nppear on poper, for they end user is beginning to show signs of looking shaky growth. It therefore often be-

If only through the application of past experience of other high technology industries, such as the semiconductor husiness, It is possible to foretell that at some time a great shake-down will occur. The signs are beginning to show that it might well come sooner than later.

The signs are many and various and, while some nre fairly obvious, some subtly disguise themselves. Often the signs of trouble even assume the mantle of signs of hope for the future, and not least among these is the rate of growth that the industry is attaining and, therefore trying to maintain.

An annual growth of 188% can he of great assistance in from a reasonable base takes running his business, but even if some managing. The figure itself is a simplistic extrapolation of figures glesned from Kit Spencer, general manager of Commodore in the UK. At the end of last year, he said that Commodore was selling some 1,200 Pets 8 month, 50% of which were 32K-byte systems.

The remsinder was split equally hetween 16K- and 8Khyte systems. On top of this, the mipsny was selling some 800 disc drives and printers a month.

need for on-going support for the customer, once he hoa stop-Knock off some 20% from the ped heing one. That support retail price for the desier margin should not only cover the and produce a monthly total. mointenance of hardware and Then, believing implicitly in Spencer's estimate that Comsoftware, but the maintenance of the customer himself. modore has 50% of the UK market, double that total, money and if the cuatumer is keen to take advantage of the

Now the market growth rate is high, some might think dangerously so, and runs in cover the coat; either directly as dangerously so, and runs in multiple figure percentages per month. So be conservative and grow the total arrived at by 10%, lt is, howeve

Somewhere out of that lot such support for the customer is comes o figure of £43 million as available, regurdless of any the size of the UK market in 1980. The accuracy of that prediction is to some extent trelevant, but the exercise ing with the figures shows up some interesting ospects of understand computers, out the growth rate, and highlights understand the need for using them a slice of the growth dustry faces.

For example, at 10% monthly growth the last month of this transfer color to the commendations. Year is going to be very nearly as big as for business as the first three put together. Now, the management of such a growth rate, as well os the funding of it, is a difficult trick, and one that not all the participants in the nusiness will be up to.

Tha financial collapse of the Byte Shop chain is only the mostapparent manifestation of the way things may well develop over the next yesr or two aa:a result of this growth.

Professional managemant:

kilis are, perhaps unfortunately for the people who are currently finding the business a great deal. m. the most essential prarequisite of actually surviving.

Then it can be set up and plugged in so that all sorts of wondrous powers and capabilities fall magically to hand. Wrong!

Maybe now that this new decade has got under wny, the small computer industry should start looking tu what is actually important to it and its customers and how best those defined objectives can be met.

The newly-formed Computer Retailers Association, for forum, defining not only the companies.

objectives, but also organising the means by which they can be achieved. This will mean, of course, that the association will rapidly have to hecome much more than a potential drinking club for the members.

A sense of purpose and direction, with a well controlled and sharp set of teeth to deal with any recalcilrants, would give the association the means to provide the users and potential users with considerable confidence in example, can provide an ideal both the industry and member

due to opan its doors at the perhaps pertinant to look maintained, increasing the et where the industry that drag on the companies cessful exhibition and

what may lie in store for it. unauspecting euppliera and dealers. Not least of these le the epparant firat algne of such e crisis boundless success that the industry is having.

fect it demands an uncommon amount of finencial and businees management skille, end could well lead pening.

WITH Microsystems 80 to a mejor shake-down. At the same time, ex-Wembley Conference tremely high levals of cus-Centre next week, it is tomer support have to be

has created such a suc- supplying the merket. It is probable that the conference is going, and industry is approaching the type of crisis alraady agen In this article, Micro in other high technology News Editor MARTIN industries, such as BANKS points to some of semiconductors - that is, the pitfalls that could acon kaaping peca with its own come creeping up on tha potential. The opening of Microaystems 80 moybe

comes at a time whan the

will be apparant. There are problems for With a growth rete this the industry in terms of coming year that could anothwere as well. As part eventually top 200%, it of this saction, Peter might appear that the only Croziar, managing director colour the business could of Computer-sense, posee possibly be is rosy. But in the question of whether eoftwere is the industry's Achilles Heal end looks at some ways to stop it hap-

Microprocessor

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shout the abundance and cheepnass of micro's Achillas Heel. He points to the

house Computorsenss, poess the ministration work, ere actuelly pro- ware.

microcomputer aystems, end sugg-

With epplications softwera probmicrocomputersoftware, or the doarth growing credibility gep between ex- ably the most crucial element in of it. Everything depends on the in- poctations end schlavement of implementing a microcomputer system, Crozier sete out eome rulee (right) for users that should lead to a Here PETER CROZIER, menaging ests that few of the systems installed director of software end systems last year, especially for business so-

Why first time users must check software before buying

HEALTH WARNING: COBOLOR PL/I

CAN SERIOUSLY DAMAGE

ganisations and individuals in both government and industry seem to be gripped by o fever micro fever. Fed by the predletions of the pollticians and the prupaganda of the popular Press, the "chip" has developed n reputation as the magic solution to a multitude of business, ludustriul and commercial prohiens. Hence the current wave of buying fever.

evident thon at computer exhibitions where the stands of exhibitors (requently overflow with husinessmen lighting to

buy their first microcomputer. Probnhly the most ropidly grnwing market for the applicatinn of such devices is business administration for small compnnies. It is also tha market sector which can least justify the entliusiasin.

PANSOPHIC

aspirations of their owners. has monitored the progress of small buainess (micro) com-

or uproductivity. And it's gone a long way towards building.

user confidence in our department. It's not every day you

Administrators have been noticeably impressed and they

The main strength is obviously reporting. However, the comprehensive features allow EASYTRIEVE to be used for

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request some pretty hairy reports. Our programmers

the vast majority of simple to moderately complex

or PL/I become !> hour -- 2 days with EASY FRIEVE.

end users to use it effectively within a rlay...

WHAT CAN EASYTRIEVE DO?

HOW EASY IS EASYTRIEVE?

fewer of the microcomputers

nuters will racognise the growing gulf of credibility between expectations and achievements. Very few of the microcomputers installed during 1979 ore actually producing tha results expected by their crease, we may predict that even

Despite the current wave o euphoria, the microcomputer la fundamentally no different from any other computer. During the last 15 years existing users have acquired considerable experience, the principal lessona of which are now established folk-

1. Application programa. Their

Ten rules for successful applications software

1. Buy "Hara and now" products only.
2. Buy a product which has received its beptism of fire in all hands of substantial and sophisticated computer users.
3. Buy a product which can be modified easily, by the middle layman limited whenever his requirements change.
4. Ensure that the product is as footproof as possible. Specified:

main tites.

(b) Be possible to run the programs in the wrong sequence.

(c) Mener it the programs are run in the wrong sequence in the second be an inherent re-run capability. copies of crucial deta tiles.

copies of criticial data tireg.

5. Buy s product which is aimple to operate such that happened can learn one simple rule which determines the operation of it

application programs written by other people or organisations.

8. Buy a product which enables the user to produce specific reports whenever they ere wanted without ceiling upon stand

9. Buy a product for which experienced skilled help is a within one heur's cardive of your office.

10. Remember that the price of the softwers is a be cost only — it is no guide to value.

sultability, rellability and maintalnability are the most Important factors in a auccessful

2. Uaar support. Every user needs help. He needs the kind of help which prevents him from making errors, which helps clean up the inevitable mess after he has committed a bloomer and which enables him to improve his systems as his needs become more sophistl-

3. Computer equipment of the right power, capacity and reliability is vital but is subordinote to both of the preceding

A new generation of computer buyers hos come inth existence which has no previous computer experience. Its members have not lived through the atruggle of the late Sixtles and early Seventles, when the rest of us were trying to get the payroll to work and the sales ledger to balonce. They never knew the delights of decimulisation or the trnumns of VAT. They have no perception of the effort needed to divert o headstrong error-prone user perceive the hardware as being the most important item on the shopping list with little difference between one supplier's only slightly. Soen one supplier's

product and n "future promise". The new generation has little tion becomes three month perception of the quantity or quality of support which each system will ultimotely regulre or

or between n "here-and-now"

In experience are already becoming apparent. Concerning those microcomputers installed in 1979, there are many cases of dissatiafaction on the part of

because of the non-availability supplier to introduct or unsultability of applications modifications. But the software or because of the departure of programming stnff.

or who are in the process of sibly months). (c) The or litigation for the return of the

vastly reduced specification of does not realise that the acceptable performance, because of the lead of 3. Users who have accepted a cause of the lack of capacity in either equipment or software. 4. Users who have decided to

further applications because of to make his system further applications because of the non-availability of suitable when the avent occurs the user have the whether the user have the wholes.

sharply growing asles volume. Out requiring as Within two years, 50,000 ance? Or is he once microcomputers are likely to be a step upon the trees Installed in the UK to provide pensive data process commercial data processing. The crucial elem facilities for small to medium

Each Installation will require approximately four application systems (eg order processing ware in his but sales ledger, purchase ledger, "this respect ha payroll and nominal ledger). Than to adopt the Approximately 1.5 application in fules shown above

systems will require the pragrams to be specially talked and 15 man months of addition work before the systems wilk :

suitable for the user.
On this basis we may exact new users to consume a tould 25,000 man years of support during the next two years. Sixt man-years of experienced it port during that same pedd the suffering may be come:

the plaintive cry, "All wears! some simple packaged to tems'? Almost without euc tion, first-time users sem believe that their requirers are simple and straightforand can easily be resolved t low-cost packaged system

In our experience 100% dr: first-time microcomputer tomers began by expecting? a cheap packaged systematisatisfy their requirements!". about 90% of them had to incl. tailor-made systems. Why?

Because first-time users & discover that no matter by comprehensive the pack system, the system which the netually need is different purchase ledger and another's, olteration is added to sand until stundurds) a one-day med

the famous dictum - "A" puter program is never not believe it. Consequ after his originally packaged subsequently-tailored system have been installed he dist that modifications are not to keep them up to date with users including:

1. Computers which stand idle
because of the part of the par coveries: (o) The modificate

> The typical first-time plex repercussions. He sign reared on nudit trallet

This trend is expected to in- detect the arror crease in 1980 because of the solete it and to constantly groupe and the constant successful imple microcomputer lett

Appointments

COMPUTER WEEKLY, Jenuary 24, 1980

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As the man most concerned in ensuring the control system is perational, you will be in day to day contact with those responsible for beer quality and will therefore contribute to this in no small way yourself. So If you are a Graduale with both hardware and software experi-

ence, male or female and have a healthy curiosity about the mysteries of high volume beer production we would like to hear from you.

The Company offers an attractive employment package a pleasant.

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For future details of the job, and the Company as well as an applicat. tiorr form, write to Angela Guy, Personnal Assistant, Whitthead Wales Little The Brewert Magor Gwent



DEC PDP-11 Specialist

Holland

A small, growing computer services company in Holland has an urgent requirement for a Senior Analyst/Programmer - preferably with Team Leading/Project Control experience - to join the company. Initial project will involve sorting out an important customer's problems with RSX-11M, and thereafter the successful candidate will be expected to help "grow" the company - setting up and running

An early start is extremely important - position will particularly suit an entrepreneurial and energetic contractor. Naturally, relocation and assistonce with accommodation will be supplied, along with the company car. Contact: Andy Wright

Programmers and Analysts

Thames Valley Salaries Neg. This company is world-renowned in the development and murketing of Database and TP software. Their Consultancy Division. which is expanding rapidly, have a requirement for good quality Analysis and Programmers to work on a variety of commercial iurnkey projects. Flexibility and professionalism are more important than specific hardware/software experience, but commercial systems experience is required. Contact: Bernard Kiernan

X25 Implementation

S. Germany

salaries to DM 90,000

A new communications group is to be established in Germany, by one of Europe's leading Consultancies. To date, the company has specialised in Database/T.P. projects and has scored major successes in the field of innovative and effective design. If you have X25 or simula some European group... challenge of developing a new European group... Contact: Andy Wright If you have X25 or similar software experience, and would relish the

Head of Tech. Publications

Bedfordshire

c. £9.000

We have been retained to recruit a Senior Technical Publications person to run and control a group of up to 20 staff. The Company is a computer manufacturer producing and selling quality products to all sectors of commerce, industry, scientific and military areas. Candidates must be very experienced in either hardware or software with a sound familiarity of totol systems. A high degree of management ability is also sought. Contact: Mike Creamer

Program Designer

London

Our client, one of the world's largest timesharing organisations, has a vacancy for a Program Designer to participate in the design and development of a mini-based commercial system. Candidates should have about four years experience in the design and programming (high level language) of commercial systems, prescrably in a minicomputer/communications environment. Experience of systems software would be an advantage. Excellent salaries and large company benefits

Contact: Jim Baker

PDP-11 BASIC+

West Midlands

£5,500 - £7,500

A retail organisation, which is well known in the high street, is seeking a number of PROGRAMMERS with varying lengths of experience to assist in the development and implementation of a range of new commercial systems.

Applicants should have a minimum of 1 year's programming experience on a PDP-11/RST system using BASIC+.

Contact: Bey Stevens

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Applicante should be interested in applications rather than systems programs should have experience in FORTRAN coding of scientific or technical programs Salary in the range £3845-£7210.

Housing Banking and shopping facilities on site Treneport from local towns and villagae Excallent aports and sociellad

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Ideally, we are seeking people with experience of CORAL, RTL-2 and/or Assembler – In particular POP-11 operating systems, However, we would also like to hear from those in the commercial world who feel the

need for a greater technical challent work.

Why not discuss the opportunities with re-initially get in touch with my office with a address/telephone number. Alternative telephone me, any evening, or Burges in 41360.

Peter Dye Associates

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NEAR WINDSOR

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- * With experience of major commercial systems development.
- * Knowledge of database and/or real time systems desirable.
- * To form a key analysis and design
- ★ To lead project programming.

ANALYST/PROGRAMMERS

- design and specification.
- ★ Possessing a strong Cobol back-ground ideally IBM.
- * To undertake analysis and design.
- * To lead a small programming

PROGRAMMERS

- ★ With experience of program ★ With a minimum of one year's Cobol, preferably IBM.
 - ★ To develop programs in a technically advanced environment.
 - ★ With the potential to develop as analyst/programmers in the future.

£8-£11,000 + BENEFITS

Salaries offered will be commensurate with experience and benefits include five weeks holiday, flexitime, subsidised restaurant and sports and social club facilities. Make a positive career move and contact Myriad Appointments now.

REF: NW1/2401

NETWORK ENGINEERS

WATFORD AREA

£6000-£7000

Our client, a successful and prestigious multi-national organisation with extensive computing facilities throughout Europe requires two Network Engineers to join their Telecommunications team based at their central data centre near Watford.

The team is responsible for installing, testing and monitoring telecomms facilities both at the centre and at European operating units will necessitate a certainamount of European travel. We are looking for people with a thorough knowledge of telecommunications and a background in either Computer Operations or installation of modems, multiplexors, etc.

Salaries are negotiable and our client also offers an excellent benefits package with relocation assistance where applicable. REF: NI/2401

within a progressive organisation, will find these positions are technically challenging and offer the opportunity of further career advancement limited only by . one's own ability.

WHERE NEXT?

Applicants will have either developed application programs in IBM Assembler or gained an in-depth knowledge of the language through systems programming. Knowledge of DOS/VS and related systems software will be a distinct advantage as the company specialises In this operating system.

DOS/VS ASSEMBLER

PROGRAMMERS

Programmers, seeking to consolidate their careers

The current vacancies are to enable the company to meet their ever-increasing objectives and they offer SENIOR PROGRAMMERS and PROJECT LEADERS the opportunity to design and produce advanced systems on the IBM 4300 series. Additionally the installation houses 370 equipment.

Salaries will be in the range £8,000-£11,000 + benefits. depending upon experience.

The modern offices are situated in attractive countryside within easy reach of London and in addition to an excellent commencing salary the company offers first-class conditions of employment.

REF: \$1/2401

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Technological advancement is vital in retaining job interest and expansion in computer operations is paramount to career development. The current configuration comprises twin IBM 3031's operating under VM/370 and OS/VS1. Communications equipment includes local and remote VDU's. typewriter terminals and RJE facilities spread throughout the U.K. One machine is dedicated to providing IMS scheduled services, while the other provides timesharing facilities under VM/CMS.

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To develop these services still lurther, it is now intended TO INTRODUCE A THIRD SHIFT and recruit operations professionals with the following

SHIFT MANAGER-starting salary £8,000 - £10,000 inc.

It is unlikely that those with less than five years' IBM 370 operations experience will have the qualities necessary for this demanding role. Tou will be expected to demonstrate a thorough knowledge of OE /VE1, IMS and JCL together with the management skills required to manage a shift. Experience of VM/370 and Communications would be a distinct advantage. This opportunity should be viewed as an

SENIOR OPERATORS—starting salary £6,000-£7,000 inc. Applicants should have at least two years' IBM 370 experience and a good knowledge of OS/VS1 operating systems. Familiarity with IMS and VM/370 would be a distinct advantage. Also, maturity and reliability will be considered as essential qualities for these positions

OPERATORS - starting salary £5,000 - £6,000 inc.

These opportunities are ideal for those who have at least one years' involvement with OS/VS1 in a large IBM 370 environment. It will probably be your first career move in the industry and will present an outstanding prospect in terms of job satisfaction and technological

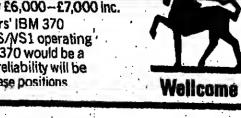
The Wellcome Foundation provide what is possibly the most comprehensive training and career development programme operations stalf are likely to find in the industry.

Management are aware of the need to provide alternative career paths and can ofler opportunities to move into Production Support, Network Control and a variety of new operational areas. You will be expected to spend some time training in all aspects of these departments.

Starting salaries are highly competitive and additional company benefits

- IDEAL LOCATION. DARTFORD, KENT provides easy access from London, Kent, Essex and areas of Surrey and Sussex.
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Successful candidates will be under 35, well educated with computer experience gained in programming, analysis or any sales oriented position. An awareness of business gained in a Contract role would be particularly relevant and a desire to progress with the Company coupled with the ability to work on one's own initiative is of prime importance.

If you are interested in considering a career in recruitment and would like to learn more about these challenging positions and the training available, ptease telephone to arrange a meeting to discuss the matter in

REF: AW1/2401

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Management Consultancy

London Based

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Required is a very experienced Analyst/Programmer or Programmer with plenty of PL/1 and a sound background of CICS, TOTAL systems. Essential that appointee is highly quolified. Initial project. (marketing stotistics) duration is for a minimum of 1 year.

Contact: Mike Creamer

PDP11 Field Engineers

Köln and Frankfurt

Our client is a U.K. based company who have developed a highly efficient order-processing system based on PDP11 equipment. Several systems are being installed in Europe and Field Engineers are required to carry out installation and subsequent maintenance servicea.

Appointees will be expected to spend one or two months in the U.K. on a familiarisation course followed by Germon based assignments for about 18 months. Thereafter, projects could be elsewhere in Europe/World or back in

Dutch-Speaking Analysts

The largest independent systems/software house in the World, has several slots for Dutch speaking Analyst/Designers with experience of real-time, mini-based project development.

Career prospects are superb – leading to Projects Monagement and above. European wide since the company has a presence in several Continental countries. Full relocation and good, large company benefits are available. Contact: Andy Wright

COBOL/RPG2 ---- COBOL Con.

Frankfurt, Germany

Complex re-programming job to be carried out from IBM 370 and Scries 3 hardware – programmes in both COBOL and RPG2 – to HONEYWELL L64 COBOL Programmers with both COBOL and RPG2 experience would be ideal, although extensive experience in either will be considered. Also a slot for an RPG2 specialist. Contact: Andy Wright

Computer Manager

North West

c. £8.000

A major manufacturer of products for the motor industry is seeking a COMPUTER MANAGER to be responsible for the implementation and management of a new system based on HP3000 hardware. Applicants should have a professional attitude and sound technical ability combined with experience of commercial and manufacturing systems.

Analyst/Programmers

South Coast

to £8.000

This 'blue-chip' computer services company is looking for highly motivated personnel capable of fitting into a fast moving and varied commercial environment. Successful candidates can expect an appropriate induction and training period tied to an identified career development plan. The computing environment is typically IBM and includes DB/DC, and integrated, Contact: Margaret Stevens

Applications Packages

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Our clients are specialists in the development and marketing of General Accounting and Payroll packages. The current requirement is for competent Programmer/Analysts with COBOL experience on any machine, to work in to high standards, linsupervised. There is some client contact, and a minimal amount of travel.

Very nice environment – benefits include a very good bonus scheme and non-contributory perision scheme.

Contact: Bernard Kiernan non-contributory pension scheme.

APL Programmers

Our client, an international computer services organisation, has vacancies for APL Programmers to work on the development of commental systems on micros. Candidates should have two years APL experience, preferably in an accounting/financial environment and the ability to bandle client problems. Above average salaries and benefits.

Contact: Jim Baker.

> JAMES BAKER ASSOCIATES. International Personnel Consultants. 32 Savile Row, London WL Tel: 01-439 9311.



JBA

Analyst/Programmers

(2+years experience) to work on Computer Network Systems Development

London Area

Start circa £7,500 - £9,500

Our client is currently developing some of the most advanced computer networks yet seen in Europe. The technology involved includes real-time systems, communications, graphics, output, on both large mainframes and mini-computers.

Positions have become available for Analyst/Programmers - or Programmers with some good design experience – to join these teams. Experience sought is non-specific in terms of languages or machines but candidates must have worked in an environment in which at least one of the above types of systems had been developed – and should possess a thorough understanding of the system. In general terms, IBM, UNIVAC, HONEYWELL or ICL 2900 experience is useful together with ASSEMBLER, COBOL or PL 1.

These are excellent career opportunities with a company which is growing in the UK at a tremendous rate, and which can offer a wide range of opportunities on the Continent at a later date - if so desired by individual employees.

Benefits package includes:-Interest-free season ticket loans; Luncheon vouchers; BUPA; Disability and Accident Insurance; Pension Scheme; Car Scheme.

> Please contact either:-Peter Murley on 01-437 3043 or Andy Wright on 01-439 9311

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A Honeywell Level 66 DPS44 with 2 megabytes of main memory and using Time Sharing, Transection Proceeding and On-line Ousry and Reporting Fecilities is on order for delivery in July. DMIV Deta Management System, IDS II Data Base System and Cobol 74 will be ueed. A front end Network Processor will control terminals situated throughout the Borough.

Applications are eccordingly invited for the following new posts in the Chief Executive's Department (Central Support Group):-

SYSTEMS DEVELOPMENT MANAGER PROJECT LEADERS SYSTEMS ANALYSTS SENIOR PROGRAMMERS PROGRAMMERS

£6,500-£8,500

£11,000

The succeesful applicants will be appointed to appropriets National Joint Council ealery scales which in the case of the Systems Development Manager will be within Principal Officer Renge 2 and the remaining poets from AP4 to Principal Officer Range 1 (plus London Weighting allowance and Comperability award pending).
For Programmere a good working knowledge of COBOL is praterned but COBOL training will be given to Programmere experienced in

Relocation and removal expenses mey be considered. Generous bolideye. Officea in Romford Town Centre, close to main line Railway Station, within easy reach of the Essex countryside.

Application forms and further perticulare from Computer Project Teem, Town Hell, Romford, Essex. Tel: Romford 46040 Ext. 369/9.



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This position olders scope for personal development and foreign trevel (Europe and USA), combined with the eatisfection of working for a smell closely knit company situated in e very pleasant eree

Plesse write or telephone for an applica-tion form to: Miss Lorreine Theobald, Xenotron Ltd., Vinces Roed, Dise, Norfolk IP22 3HH. Telephone (0379) 4011/2.

ASSISTANT LECTURER OR COLLEGE LECTURER

MICROPROCESSON FACILITY

LECTURER n the Micropioussos Forskly which he book sol up to provide teaching esper lise in microprocessors for all depart ments in the University

Caedidates for the yest should have experience in encroprocessor applications and professibly knowledge of selectrotics and microprocessor hard ware. The successful candidate will be required to assist in the building of specialised microprocessor-based systems. The appointment will commence on or before the 1st September 1880 Selery scale £4.786-£9.881 (undersless)

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Stewart Wrightson BUSINESS + SYSTEMS ANALYSTS

City and South West London £7,500 to £9,000 + benefits

Our clients are a major city insurance broker with substantial interests both in the UK and overseas. They are currently developing a range of new systems to support their worldwide business activities. A number of these systems will be on-line terminal based using satellite minis linked to an existing IBM mainframe.

To assist in these major projects the company is seeking to recruit experienced Business and Systems Analysts who have the ability to develop distributed processing systems from feasibility through to

Candidates must have at least two years sound experience in systems analysis, programming or O & M preferably, though not essentially, in a commercial environment. A knowledge of Insurance/finance, mini computers or on-line systems would be an advantage.

As these positions will require a considerable amount of user contact at all levels, successful candidates must be able to communicate well.

These are responsible positions within an established department and provide the opportunity for rapid progression to Senior Analyst and Project Leader

In addition to these excellent career prospects and involvement in new areas of applications and equipment using the latest techniques, the company offers the following range of benefits:

- O Non-contributory pension scheme O Subsidised restaurant
- Season ticket loans O Employee share scheme
- O Luncheon Vouchers

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Ws offer generous annuel lasve, a subsidied eteff resteurant and ere closs to trains, tubes and buses. Assistance with relocation expenses, il appropriate will be

As part of Lambath's Equal Opportunities Policy, applications are welcome from people regardless of disability, merial status, race or

lication forms evallable from the Recruitment Section, Directorate of Management Services, London Boroug of Lambeth, 18 Brixton Hill, London SW2. Telephone: 01-274 7722 Ext. 5008/9, Clothing data 5th February

AMBET

applications programmer

Here at C.S.S. we now need a highly competent Programmer to take full responsibility for the maintenance of the operating and application soft-Ware on a recently implemented. Honeywell Level 6/43 installation Current applications include: accounting personnel records and PERT, although the success-ful applicant will be expected to

control and contribute to the development and implements tion of new application software for a variety of projects. Although age is no partier, pre-vious experience of COBOL and

Salary negotiable; Manchester based

FORTRAN would be a distinct advantage. *

If you would like more details. please phone Ray Miles on 061-969 5535, reverse charges or write to him at: General Site Services Ltd. Nelson House, Park Road. Timperley, Altrincham WA14,5AB

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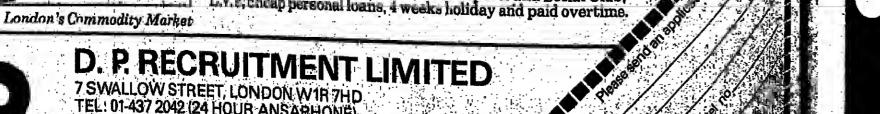
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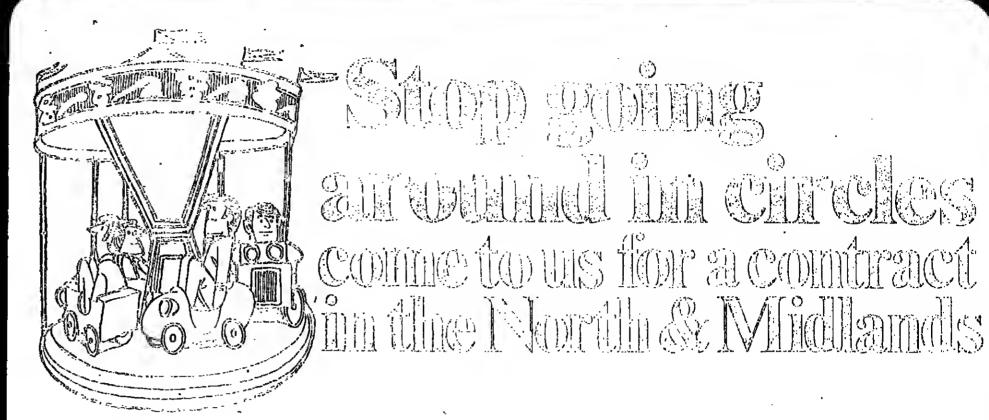
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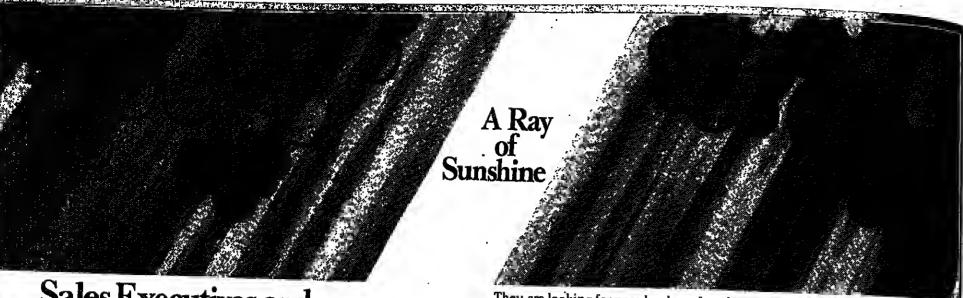
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"We tendered for the contract without knowing the target machine." he told Computer

tract.

Onn System 4 is a general data processing machine at ESA's Space Research and Technology Centre in Neerdwijk, Holland, The other is at Dermatedt. West Germany, where it nect as a both-end batch processing machine inking satellite data collected by Stemens 338 mirkomputers and a CII 16 070, a machine based on the Xerox Sigma 7.

ICI. bid large 2000s (above 2960) for the contracts, and told Computer Weekly that it had not been notified it had lost.

"However," said a spohesman,
"we would not be too marprised
to lose this one because ICL has
ever 70% of ESA's mainimme
business end the Agency is likely
to want to spreadit more evenly
hetween us, CII-HB and Siemens." Problems with the 2980s
at Dasmatadt, sithough now
resolved, with eet have helped
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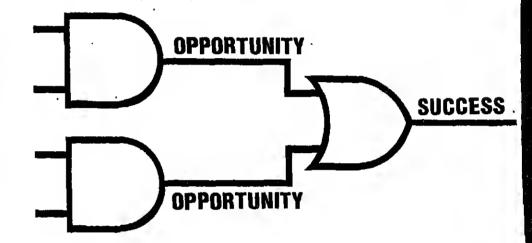
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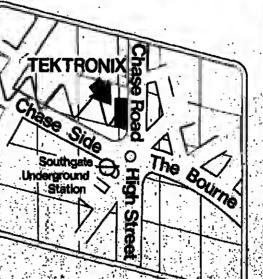
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A company employed in the manufacturing sactar seak additional enelysts to work in manufacturing anvironment on e verlety at davelopment projects. Taske include customarising end implementing packaged menufacturing systems, training of users, writing and implementing departmental procedures, preparing and maintaining systems documentation, project planning and control, supervision and programming of any client associated programming raquirements, design spacification, testing and implementation of ell user eystams essigned to your personal control. A veriety of packages are currently baing used including OBOMP, RPS.SAFES, MAAPICS, OMAC and MCS-6. Cendidetes should pralarably be educated to HNC or degree level. Relocation assistence will be provided where appropriate.

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MINI ANALYST/ **PROGRAMMER**

Candidetes for these positions shauld have experience of PDP-11/L4. PDP-11/34 or Systine 3,000/5,000 conligurations. Experience should covar a general commercial and finencial applications of menufacturing organisations. Although the position will be based in Sheffield successful candidates must be prepared to spend considerable emounte of time on-site at remote locations instelling systems on behelf of the perent organisation. He/she must therefore be a driver end show willingness to goerate in a damanding environment. Staff repart direct to the Mini Computer Projecte Menager and candidates will initially take responsibility lor systems implementation and all fecets of software devalopment end support down to mainteining existing installations in and throughout Leicestershire. Expansion of mini usege within the Company has already begun and it is envisaged this will lead to involvement in other hardware and softwere systeme in the neer future. It is likely that initially these will be based upon the new ICL system 10 / 120 series. Candidetes must be capeble of working closely with all levals of staff up to Board level. It is unlikely that onyone with less than 4 years' experience in systems and programming will have the nacessery beckground. Sound carear opportunities exist for succaselul candide -Consultant - Carol Proudman - 0782 823666.

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A controlled systems organisation are repidly developing their UK merkata end urgently eack edditional experienced selesmen to market word proceesing, terminets and peripheral equipment as specified within the company product range. The group also have e saries of accounting/business systems machines to provide a fucretive extre product renge where the opportunity occurs. Five new salesmen ere required immediately and ettractive commis-sions schems exist for top, productive sales consultents. Please epply urgently for an application form.

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A menufecturing group in Croydon ere seeking edditionel experienced enalyet to assist with development of ewide range of OP techniques used in meny different functions throughout the fectory to reduce menulaciuring cost. Already communications orientated production information and control system is being piloted for UK group use at this perticular company. Successful epplicents should have at feast three years experience of accounting and/or manufacturing systems. Cages would be abbuttants and to manufacturing systems. more important. The company are prepared to pay up to £8,500

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The peyroll and pansions group provide a service to both central and locel selaries, pensians end personnel depertments. This service enteils the provisian, implementation and meintanence of systems used in handling date on selerice and pensions pertinent to steff employed within a large UK group. Currently there are up ta 40,000 personnel recards of dete held within the files of the verious systems in use. Sanior Analyst/Programmer reports to the Peyroll and Pensions Group Manager and is required to handle the day-to-day running of the department including being responsible for the work of two more junior employees, He/she will provide general and technical guidence on programming techniques and methods. The Senior Analyst/Programmer must have a good knowledge of Cobol and sufficient Assemblar pragremming experience to meintein current Assembler programs, plus ability to lead a small team of people whilet handling work of a vary confidential nature. An attractive salary will be negotiated for candidates af suitable experience.

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The scientific camputer centre of e large industrial group provides e camputing service for engineers end designers in erees euch es computer eided design and modelling. The scientific centre has a OEC 2050 which is coupled to en extensive communications natwork including IBM mainfreme. The parson eppointed will ideally be a graduate in sither science or anginearing in addition to having a minimum 2-3 years' practical Assembler programming experience using OEC-10 or OEC-20 equipment. Attractive selaries of up to £8,000 will be peid for setisfectory cendidetes.

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The EMS/ICL Systems Division besed in our Newcestle-under-Lyme Centre have an urgent requirement for en experienced Systems Deelgner to work in a smell teem of enalysts end programmers to take responsibility for feasibility studies, systems enelysis end design for e verlety of projects end reguler communication with the client through to eysteme testing implementation and user training. This perticular Systems Olvision has only been established for the least B months and will have doubling in through the stablished for the least B months and will have the stablished for the least B months and will have the stablished for the least B months and will have the stablished for the least B months and will have the stablished for the least B months and will have the stablished for the least B months and will have the stablished for the least B months and will be described for the least B months and will be d be doubling in tumovar each year during the next few years therefore offering an excellent cereer growth opportunity for therefore offening en excellent cereer growin upportunity for compeny molivated analysis to gain the opportunity of growing with the unit from its original foundation. We are already considerably shead of projected tergets and envisage a successful dayalopment during the 1980s. Work veries from meny original content in the content of qualom-built projects through eventually to converting e verlety of astablished systems from our Mini and Turnkay development unit based in Birminghem for use on ICL 2903/4 and coming new range systems. An attractive salary will be negotieted eccordition in a system of experience avelleble with each condition. Consultant — Don Walkists — 0782 523665

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the collection of company product I'd prefer to leave data prior to first contact, to out meeting until a fater pursuing overdue accounts. date" — like never! However, there are some Rule four is to prepare a selling activities which formel list of all companies should completely exclude to be approached with the use of the telephone and complete basic information one situation where it must such as correct name of the always be used with ex- best contact, town (journey treme sensitivity and com- planning, remember?) mon sense. It is this latter telephone number and nrea that I would like to deal dinlling-code, product most with first the fixing of likely to create interest,

I know there is such a whenever thing as tele-sales, but that numbers are engaged. is relevant to fast moving Apart from prospecting. consumer goods and in the telephone is a dangemany cases represents rous and/or uscless device glorified order-taking. You in some key areas of busicannot successfully sell ness. The ones that soring technically oriented pro- most readily to mind are ducts that require any kind. Sorting out problems, getexplanation, by ting decisions; providing

What few exceptions technical detail; estathere might be to this thesis

The second most important language you can think of ant rule is that all relevant other such telephonic "noinvestigating and planning go" areas. be completed before

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Telephone can

THE telephone is one of the . There is always a temptabasic essential devices of tion for the salesman to be the selling process. It is dif- drawn into supplying proficult to conceive how the duct information nace the salesman could survive buyer has agreed to a without it, yet in many meeting. Don't do it! There circumstances it is the per- is no better way of talking fect tool for self-inflicted oneself out of the business. There is a considerable risk The areas where the of the putential buyer telephone can be put to best saying "Now that I have a use are fairly obvious from better appreciation of your

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first-time appnintments. most likely application area. The hasic rule is simple, and so on. Use the telephone to sell the appointment, not to sell the useful reference list but also nssists speed and continuity

are best ignored. taking the telephone call.

The validity of a commany as a sales prospect should be established before the call is made by effective use of trade directories or what. ever means of nontelephonic qualification are word processing systems has

The correct name of the sing Accessories. The items right person to speak to died with include furmum, must also have been estamust also have been established hefore the event. and preferably the initial

Rule three is to have a "planned presentation" "planned presentation" SBC range by key points which need to A POCKET guide to the Intel (SBC range of single-board DEM computers and expansion be covered. Brevity is the key word. Once the client has agreed to the appointment the call should be terment the call should be termed to the call should be termed to the most significant data and

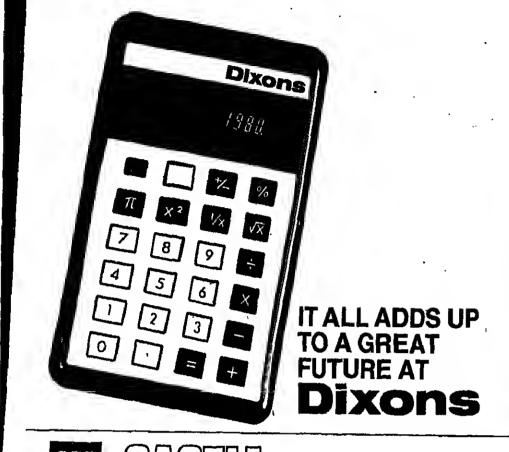
It is up to the individual, configuration planner, More. salesman to use whatever deliniscan by had from Norman techniques he believes to be Nicholl, Rapid Recuil, I.I.J. 6 sulted to "closing" the appointment, but the 'optional close" la usuelly Security systems the most effective.

Puzzle Answei

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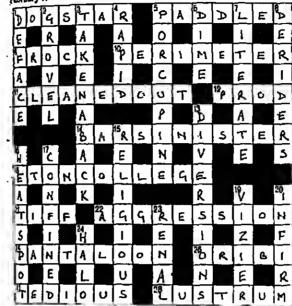
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CW prize crossword No1)

THE FIRST WINNERS

THE winner of Computer Weekly's Prize Crossword Na 1 is Mrs Shella Athey of Kinelan, Warwick, and she receives the first prize of fill Mrs Athey is a pragrammer at the headquarters of the Department of Transport's Midland Read Construction Unit at Learnington. The second correct solution out of the last was submitted by Grien Fitzsimons on Hayes, Middlesex, a systems submitted by Grien Fitzsimons on Hayes, Middlesex, a systems submitted by writer transfers in Prayes, wholeses: a systems programmer with Cannan Insurance, and the third was from Mrs shells Riggelt, date processing cantroller with Payroll Services of Lendon. They will receive prizes at £5 each.

Prize Crossward Na 2 will be published in Camputer Weekly an



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